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# COASTAL AREA MANAGEMENT ACT

## LAND USE PLAN

PENDER COUNTY, NORTH CAROLINA

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A  
LAND USE PLAN  
FOR  
PENDER COUNTY, NORTH CAROLINA

Prepared in accord with  
State Guidelines for Local Planning in the Coastal Area  
Under the Coastal Area Management Act of 1974.

Submitted to  
North Carolina Coastal Resources Commission  
May 21, 1976

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State of North Carolina, the National Oceanic and Atmospheric Administration,  
and the Coastal Plains Regional Commission.

## NOTICE TO USERS

All major policy related maps and documents are either included within the text or attached to the back of the plan. However, due to the expense and technical limitations required for reprinting some illustrations may be omitted. Complete copies are available for inspection at the N. C. Coastal Resources Commission offices in Raleigh or at the local government offices.

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## INTRODUCTION

PURPOSE OF A LAND USE PLAN IN NORTH CAROLINA COASTAL AREA MANAGEMENT

The North Carolina Coastal Area Management Act of 1974 [Chapter 1284 1973 Session Laws (G. S. 113A)] (CAMA) established "....a cooperative program of coastal area management between local and State governments" whereby "Local government shall have the initiative for planning."

Enactment of CAMA was based upon findings by the General Assembly that

- . "Among North Carolina's most valuable resources are its coastal lands and waters."
- . "the estuaries are among the most biologically productive regions of this State and of the nation"
- . "an immediate and pressing need exists to establish a comprehensive plan for the protection, preservation, orderly development, and management of the coastal area of North Carolina."

The CAMA established the following goals for the coastal area management system:

- "(1) To provide a management system capable of preserving and managing the natural ecological conditions of the estuarine system, the barrier dune system, and the beaches, so as to safeguard and perpetuate their natural productivity and their biological, economic and esthetic values;
- "(2) To insure that the development or preservation of the land and water resources of the coastal area proceeds in a manner consistent with the capability of the land and water for development, use, or preservation based on ecological considerations;
- "(3) To insure the orderly and balanced use and preservation of our coastal resources on behalf of the people of North Carolina and the nation;

"(4) To establish policies, guidelines and standards for:

- (i) Protection, preservation, and conservation of natural resources including but not limited to water use, scenic vistas, and fish and wildlife; and management of transitional or intensely developed areas and areas especially suited to intensive use or development, as well as areas of significant natural value;
- (ii) The economic development of the coastal area, including but not limited to construction, location and design of industries, port facilities, commercial establishments and other developments;
- (iii) Recreation and tourist facilities and parklands;
- (iv) Transportation and circulation patterns for the coastal area including major thoroughfares, transportation routes, navigation channels and harbors, and other public utilities and facilities;
- (v) Preservation and enhancement of the historic, cultural, and scientific aspects of the coastal area;
- (vi) Protection of present common law and statutory public rights in the lands and waters of the coastal area."

The planning processes established by the CAMA include:

- (a) State guidelines setting the objectives, policies and standards to be followed in public and private use of land and water within the coastal area; and
- (b) a land use plan for each county within the coastal area.

Following the procedures contained in the CAMA, the Board of County Commissioners of Pender County declared the intent of the County to prepare a land use plan in accordance with State Guidelines for Local Planning in the Coastal Area under the Coastal Area Management Act of 1974 (Guidelines) adopted by the North Carolina Coastal Resources Commission on January 27, 1975, as subsequently amended.

The Guidelines mandate that each land use plan contain:

- 1) A statement of Local Land Use Objectives, Policies and Standards;
- 2) A Summary of Data Collection and Analysis;
- 3) An Existing Land Use Map;
- 4) A Land Classification Map;
- 5) Written text describing and indicating appropriate development for Interim Areas of Environmental Concern.

A land use plan is one of many elements that constitute a comprehensive plan for Pender County. The land use plan expresses the way the democratically elected representatives of the people think the finite land area should be allocated to best meet the hopes and aspirations of the people who live and pay taxes in a specific jurisdiction. A land use plan can only be thorough when health care, education, transportation, economic development, leisure time, and other components of a comprehensive plan are tested against the people's goals and objectives so they can be integrated into the land use element.

Pender County's land use plan relies upon those data most readily available and focuses upon the major emphases of the CAMA; development within the capability of the natural resources. Other topics, such as water and sewer, roads and streets, and employment are consistent with issues raised by the public, but are peripheral to establishing a basis for decision-making with respect to land.

It is Pender County's intention to utilize the plan as a keystone for all future county activity. The land use plan is a major step in comprehensive planning for Pender County. Matters such as community development projects, land use controls and service facility plans can be based

upon the plan; policy issues, such as employment, health care, taxes and maintenance of natural and historic resources are preliminarily identified for later study and decision-making as elements of the County's comprehensive planning process.

#### METHOD OF PREPARING THE PLAN

The Pender County land use plan was developed as an iterative process among elected and appointed public officials, the public, and professional resource specialists.

The iterative process: 1) Sampled public recognition of problems and opportunities in general terms; 2) defined the known physical, social, and institutional setting; 3) invited the public to participate in matching problem solutions with the setting by defining objectives and standards for the County; 4) projected factors consistent with the selected County goals and the physical restraints; 5) allocated land according to the projected magnitude of demand and the physical characteristics of the County; and 6) used the inventory data developed in step 2 to delineate areas recommended as areas of environmental concern with a list of suggested uses.

Coastal Resources Commission Guidelines emphasize the value of mapping three sets of data: existing land use, land classified according to projected use in 1985, and areas the county considers to be its areas of environmental concern. Existing land use and areas of environmental concern in Pender County were mapped at a scale of 1 inch = 2,000 ft; Land Classification was mapped at 1 inch = 2 miles. The basic map medium was aerial photograph mosaics prepared by the U. S. Agricultural Stabilization and Conservation Service.

The air-photograph maps are easily reproducible and will serve as a useful public information tool. Additionally, the reproducible mosaics are available for use as base maps to support other planning activities and for implementation of the plan.

Data describing current conditions in the County were assembled from numerous federal, state and local government sources, as listed in References Cited (p. VI-1). Where more current or detailed information than was available in publications was needed, personal communication with representatives of the publishing agencies were used to complete the data collection and analysis. Existing land use was determined by air photo interpretation based on familiarity with the area and by visual inspection of structures, vegetation and water. Valuable assistance was given by representatives of the Agricultural Extension Service, the U. S. Soil Conservation Service, and the North Carolina Forest Service in the determination of both map delineations and current trends. This method of defining existing conditions permitted rapid identification of hazardous, fragile, and unique areas which, in turn constitute a major portion of the areas that should be of environmental concern.

Details of Pender County's public participation program are contained in Appendix A.

The CAMA sponsored land use planning in the County was closely coordinated with comparable activities conducted by the Atkinson, Burgaw, Surf City and Topsail Beach Planning Boards. Each of these municipalities has developed a separate land use plan to guide development within its political jurisdiction. The municipal plans were formulated in much the same manner as the County plan, following the Coastal Resources Commission Guidelines. No major conflicts between the County and municipal plans have surfaced. If in the future, conflicts should arise, provisions of the County plan shall govern, except in cases where a municipal plan imposes greater restrictions upon land use or greater demands for new development.

The two beach municipalities encompass all of the developed beach area land and each has formulated its own land use plan. Details of physical, economic and social conditions along the beaches are covered in each the Topsail Beach and Surf City plans and are not repeated here. The Pender County plan, instead, deals more extensively with land use conditions and issues of more county-wide significance and application.



SECTION 1

CURRENT CONDITIONS

## POPULATION AND ECONOMY

### Population

The population of Pender County was reported to be 18,149 in the 1970 U. S. Census of Population; the 1960 population was reported as 18,508, a decrease of 2 percent from 1960 to 1970 (U. S. Department of Commerce 1973).

The U. S. Department of Commerce classifies populations as rural or urban. Areas defined as being within a zone of commercial influence and having populations of 2,500 or more are classed as urban; all other areas are classed as rural. In 1970 only Burgaw had a population of over 1,000 persons: 1,744 or 9.5 percent of the county total. The population distribution is classified as 100 percent rural farm and rural non-farm. There has been since 1960, a decrease of 53.5 percent in rural farm and an increase of 21.5 percent in rural non-farm residents.

The resident population distribution is heavily influenced by open water and wetland. The areas of greatest population concentration are along US 117 in the center of the county and between US 17 and the Atlantic Ocean.

### Housing

According to the 1970 U. S. Census data, 2,104 (33 percent) of the 6,626 year-round housing units in Pender County lacked some or all plumbing facilities; of the 5,237 units occupied at that time, 800 (15 percent) were classified as being overcrowded. The median value of owner occupied housing units was \$6,700, and 38.3 percent of all housing was

classified as structurally deficient. The 1970 situation represents an improvement from 1960 when 37.9 percent of all dwellings lacked plumbing facilities, 21.9 percent were overcrowded, and 43 percent of all housing was classified structurally deficient (U. S. Department of Commerce 1973).

#### Education

In 1970 the average educational attainment of Pender County residents 27 years old or older was 9.3 years for males and 10.2 years for females (Pender County Agricultural Extension Service 1973). During the 1960's, public school expenditures almost doubled; they now exceed the whole of general government. Public schools are operated by the county and include five kindergartens, seven elementary, four junior and two high schools.

#### Employment

The 1970 Census shows a per capita income of \$1,713 and a median family income of \$5,390; 28.8 percent of the county's families were below the then defined poverty level of \$3,000.

The Bureau of Employment Security Research of the North Carolina Employment Security Commission publishes employment data by county, area and state. Table 1-1 depicts the overall changes in employment in the county between 1962 and 1972.

Actually, such an "average" does not validly reflect real employment in Pender County because significant fluctuations in employment and underemployment follow the seasonal patterns of agricultural activities. Under-employment is highest in January and February due to the

Table 1-1. Pender County Average Annual Work Force Estimates 1962, 1972.<sup>a</sup>

	1962		1972	
Employment	4,960	% total	5,100	% total
Agricultural	2,720	55	1,610	32
Nonagricultural Wage and Salary	1,560	31	2,610	51
All Other Non-agricultural	680	14	880	17
Unemployment	420		360	
Rate Unemployment	7.8		6.6	
Total Civilian Work Force <sup>b</sup>	5,380		5,460	

<sup>a</sup> Source: North Carolina Work Force Estimates, Bureau of Employment Security Research, Employment Security Commission of North Carolina, Raleigh, N. C.

<sup>b</sup> Civilian Work Force is based largely on a count of jobs by place of work. Publications prior to one of the most recently released (November, 1974) dealt with the "Work Force" concept in which employment data are based largely on a count of jobs by place of work. Beginning with the 1974 release, "Labor Force" estimates are being used instead; the labor force is the sum of employed and unemployed persons by place of residence. The labor force estimates reflect the number of Pender County residents actually employed, whether their employment be in Pender or neighboring counties. Because of the change in approach to employment data analysis, current employment figures cannot readily be compared with those developed in the 1960's.

slow-down of agricultural activities, and high again in June following the end of the spring school semester. However, the above figures indicate a continuing relative trend from agricultural to non-agricultural employment. Agriculture accounted for 55 percent of total employment in 1962, but only 32.0 percent in 1972. Pender County experienced a gain of only 230 manufacturing employees between 1962-1972, the largest increase in employment occurring in the construction industry (Cape Fear Council of Governments 1973).

Table 1-2, based on employment by place of residence, shows a decrease in the unemployment rate in the county from 1970 to 1973. More recent information has not been published, but the Employment Security Commission preliminary studies show an average unemployment rate of 8.9 percent in 1974 and 13.8 percent as of August 1975.<sup>a</sup>

#### County Government Finance

Property taxes in Pender County in 1973 accounted for 80 percent of the total County tax revenue. Because of the lack of industry and the limited amount of commercial activity, property tax revenues are relatively small. In fiscal year (FY) 1973-1974, the total assessed valuation for all real and tangible personal property and utility valuation was \$82,067,119; the tax rate was \$1.10<sup>b</sup> per \$100 valuation, producing a total property tax revenue of \$902,736. For comparison, the assessed

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<sup>a</sup>Floyd Outland, Bureau of Employment Security Research, Employment Security Commission, personal communication.

<sup>b</sup>In FY 1973-1974 a rate of \$.62 was levied for schools and \$.48 for purposes other than schools (North Carolina Department of Revenue 1974).

Table 1-2. Pender County Average Annual Labor Force Estimates 1970, 1973.<sup>a</sup>

	1970		1973	
Employment	6,480	% total	6,820	% total
Agricultural	1,140	18	1,070	16
Nonagricultural Wage and Salary	4,940	76	5,350	78
All Other Nonagricultural	400	6	400	6
Unemployment	420		390	
Rate Unemployment	6.1		5.4	
Total Civilian Labor Force <sup>b</sup>	6,900		7,210	

<sup>a</sup> Source: North Carolina Labor Force Estimates, Bureau of Employment Security Research, Employment Security Commission of North Carolina, Raleigh, NC, 1974.

<sup>b</sup> Civilian Labor Force is the sum of employed and unemployed persons by place of residence.

valuation of nearby Brunswick County for the same year was \$278,207,620, which at a rate of \$1.42 per \$100 valuation produced property tax revenue of \$3,950,547. Pender County's share of sales taxes in 1973 produced a revenue of \$143,000, county shares of states taxes such as intangibles and beverage taxes added \$70,328, for a total County tax revenue of \$1,135,366 (North Carolina Department of Revenue 1974).

The largest single county expenditure in 1973 was for schools, amounting to \$505,799 or 56 percent of the property tax revenue. Miscellaneous expenditures such as allocations to libraries, community colleges, rural fire control, and farm and home agents accounted for 17 percent of property tax revenues; welfare allocations including hospital and aid to dependent children grants accounted for another 17 percent of the total.

#### Agriculture

Pender County functions as an economic entity whose primary reason for being is the productivity, supply and distribution of goods and services (Wiggins-Rimer and Associates 1973). The distribution of agricultural enterprises is relatively well balanced. Poultry ranks first in the county followed by tobacco, truck crops, field crops and live-stock (Pender County Agricultural Extension Service 1973). Pender County farms lead North Carolina in the production of blueberries and commercial lettuce. Most of the county's marketing facilities complement its agricultural production. Egg and blueberry marketing, meat packing and poultry processing, together with lumber mills, are examples of the agricultural base of the County's economy.

### Manufacturing

In 1973 only three non farm and forest manufacturing plants were located in the county. The North Carolina Division of Commerce and Industry breakdown of manufacturing firms in Pender County lists a commercial printing firm, a women's apparel firm, and a hosiery manufacturing firm employing respectively 1-4, 250-499, and 100-149 persons each in 1973. All three of these firms are located in Burgaw.

### Outmigration

The most serious economic problem in Pender County is the continued outmigration of people who are not able to find jobs within the county. Outmigration, particularly of the Rural Farm sector and Blacks, accounted for the net decrease in the county's population between 1960 and 1970 (Cape Fear Council of Governments 1973). Sufficient new jobs are not being created for new entrants into the labor force; the agricultural sector is no longer able to absorb them partially because the trend in Pender County, as elsewhere, is toward larger farm units that are highly mechanized and capital intensive, thus less labor intensive.

The loss of young productive potential from the county results in a relative increase in the residual population in the number of people 45 years old or older, and a proportional rise of those with lower education and motivation. The outmigration of high school graduates represents an export of human capital from the county; the rate of loss of young people is increasing at the same time as the cost to educate them increases. Earlier economic projections, published before the current recession, predicted net outmigration ending in the current decade, with



in-migration of productive workers, attracted by jobs in the county, increasing between 1980 and 1990 (Cape Fear Council of Governments 1973). It is still too early to assess the most recent outmigration due to the economic situation.

The 1970 Census reports that 40.3 percent of the Pender County work force commuted outside the county to work (Pender County Agricultural Extension Service 1973). Because of low taxes, many people find it advantageous to live in Pender County while working elsewhere. To a certain extent, the county serves as a bedroom community for people working in New Hanover County. The public finance implications of such a situation can be serious. Tax income generated by middle income housing seldom equals the cost of education, fire and police protection, and similar services demanded by commuting residents (Real Estate Research Corp. 1974). The alternatives are substandard services or very high tax rates on real property.

#### Economic Activities Having Impact on Resources

The existing economic activities in inland Pender County do not seriously affect the land and water resources of the county. While many economic activities, especially agriculture and forestry, depend upon land and water resources, there are now no major water-using industries in the county. Growth in industry would in many areas require supplies of water, would increase the complexity of water quality management, would generally compete for land that is well suited for conflicting uses. For example, land that is best suited for industrial plant siting and residential use is in most cases the best agricultural

land. Presently, such conflicts are limited to isolated small scale incidents.

In the immediate coastal area of the county, however, serious problems have already been encountered as a result of the great demands placed on the land and water resources. A tremendous growth in tourism has occurred in the last 20 years, centering on the strip between US 17 and the Atlantic Intracoastal Waterway (AIWW). Increased disposable income, mobility, leisure time, and access, in the two decades between 1950 and 1970, have resulted in an increase in outdoor recreation and vacation second-home building in the county; an increased life-span coupled with affluence has resulted in an increased number of persons seeking locations for retirement housing. As a result, the market value of waterfront acreage has increased tremendously, leading to higher and higher housing densities. As vacation-retirement homes have increased in number, so have commercial support facilities such as restaurants, motels and shopping areas. Throughout the US 17 strip, single family detached dwellings abound, each utilizing subsurface sewage disposal methods, and many relying on shallow wells for water supply. Deterioration of the quality of drinking water, closing of Virginia and Bekkie Creek shellfish waters to harvesting, traffic congestion, and more crowded living conditions have already resulted. Yet the demand for living space, water, and services continues to rise. Presently, the effects of intensive land use are felt primarily in the summer months when beach area populations increase manyfold. As permanent residences become more numerous in the beach areas, however, resultant problems will be more likely to carry over through the winter months, only to increase again in summer.

#### EXISTING LAND USE

Pender County is the seventh largest county in North Carolina with a total of more than 550,000 acres of land and water, exclusive of territorial waters of the Atlantic.<sup>a</sup> In 1967, only 100 acres were owned by the Federal government and 63,000 by the State; only 3,913 (0.7 percent) were urban or built-up, the rest being in farms, forest, wetland, or woodland (Ospina and Danielson 1973).

#### Agriculture

According to the North Carolina Agricultural Extension Service, only one-fourth of the Pender County area was in farmland in 1973; nearly one-half of the remaining woodland acreage was agricultural Class II or III which is suitable for crop production (Ospina and Danielson 1973). The Extension Service breakdown of agricultural land use reports only about 62,000 acres of Pender County actually in cropland; there being some 66,500 acres of farmland in woodland, pasture, and other non-crop farm uses.

From the standpoint of agriculture, Pender County can be divided into three sections. The bulk of agricultural production takes place throughout that section of the county west of the Northeast Cape Fear River; farming is still practiced to a certain degree along and to

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<sup>a</sup>Theoretically, Pender County's eastern boundary corresponds with the limit of State jurisdiction three miles off-shore -- the territorial sea.

the southeast of Hwy. 17. Between these two sections lies a vast area of predominantly swampland, in which little or no farming is done.

Agriculture in Pender County is diversified. Corn, tobacco, poultry, soybeans, and sweet potatoes, and swine, dairy and beef cattle are grown throughout the county. Other products have a more specialized geographic distribution depending primarily on soil conditions. Peanuts are grown in the southeastern part of the county, especially in the Hampstead and Holly Ridge areas, with a small amount grown in Rocky Point; blueberries are the specialty southwest of Burgaw, around Currie and Atkinson, and in the vicinity of Maple Hill; commercial vegetable crops (snap beans, cabbage, squash, and cucumbers) are limited primarily to the St. Helena area from Burgaw south into Rocky Point and Long Creek.<sup>a</sup>

In the last 15 years many changes have taken place in agriculture in Pender County. The number of farms and the number of acres in farmland have decreased; the average size of a farm, however, has increased from 87 acres in 1959 to 115 acres in 1969 (Stone 1974). The number of acres of farmland harvested has also increased. Improvements in farm machinery, fertilizers, weed and pest control, and advances in plant breeding have resulted in a general trend toward increased yields and more cash from fewer acres. In 1969, 30 percent of the farmland in the county was in the 260-499 acre per farm class, 24 percent in the 500-1000 acre per farm class; the average market value per farm

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<sup>a</sup>Pender County Agricultural Extension Service, Personal Communication.

increased from \$8,464 in 1964 to \$12,419 in 1969 (U. S. Department of Commerce 1972).

### Forestry

According to the U. S. Forest Service (USFS), 81 percent of Pender County is in forestland, 99 percent of which is commercial forest land (Cost 1973). The above figures include as forestland some of that land agricultural sources classify as farmland in woods.

The 1973 USFS breakdown of forestland reports 450,817 acres of commercial forestland in Pender County, less than 25 percent (127,937 acres) of which is owned by forest industries; well over half (259,830 acres) is in private individual ownership, none is federally owned, and only a small amount (63,018) belongs to the state of North Carolina (Cost 1973).

The term Site Class is used to describe land's inherent capacity to grow crops of industrial wood; the classes are based on comparisons with fully stocked natural stands. The lower the class number (from 1-5) the higher this capacity is. In Pender County, no sites have been accorded class 1 or 2 commercial status. The bulk of commercial forestland (264,525 acres) is in site class 4; most (182,694 acres) of the remainder is in site class 5. Approximate stocking of forestland is: 30 percent poor, 30 percent medium, and only 20 percent fully (Cost 1973). The trees are predominantly in the loblolly-shortleaf type, with some longleaf-slash, and oak-gum-cypress. Both the net annual forest growth in Pender County and the annual removals are highest in pine. Trees

in Pender County are harvested for pulpwood, dimension stock, and sawtimber -- the use to be made of the wood dictated primarily by the existing market.

The SCS has made an appraisal of those soils in Pender County that are good for "woods." This list excludes soils belonging to only three of the 10 associations in the county: the Dorovan-Ponzer, the Capers-Newhan, and the Lynn Haven-Leon-Kureb Associations (U. S. Soil Conservation Service 1973). The three associations are characterized by swamps, marshes, and those areas adjacent to swamps and marshes that are generally underlain by hard-pans respectively.

#### Recreation

There are two major areas of recreational land use in Pender County -- the coastal lands and waters, and the inland woods, swamps and streams. The activities involved in both areas are strongly resource oriented.

Along the coast, activities are predominantly water and shore oriented and include fishing, boating, swimming, and hunting. The Pender County towns of Surf City and Topsail Beach are located on Topsail Island, between the Intracoastal Waterway and the Atlantic Ocean. Access to the Island is provided by two bridges, one in Pender County, the other in Onslow County. Attractions of the towns include some ten miles of sandy beaches with five ocean piers and miles of marsh and sandy shoreline along the adjacent sounds. The towns have facilities for lodging, dining and shopping, including restaurants, motels, and rental cottages.

Inland Pender County contains thousands of acres of woodland and miles of fresh water streams. The SCS reports fair to good populations of deer, bear, raccoon, rabbit, bobcat, turkey, quail and dove; the fresh water streams support bream, bass, crappie, pike, rockfish, shad and herring (U. S. Soil Conservation Service 1973). There are 63,000 acres of public and 85,000 acres of corporately owned land in the county open to hunting and 25-30 privately owned hunting clubs, many of which lease commercial forestland.<sup>a</sup> The North Carolina Wildlife Resources Commission maintains the Holly Shelter Game Management Area in eastern Pender County swampland. Hunting activities in this area include planned hunts arranged several times each season, with several days each season reserved for bow and arrow hunters. Table 1-3 lists the recreational value of various Pender County game species.

The Wildlife Resources Commission has also provided numerous access areas on the Northeast Cape Fear and Black Rivers with facilities for boating, skiing and camping.

In March 1973, the Soil Conservation Service published An Appraisal of Potential for Outdoor Recreational Development for Pender County. The study appraised the possibility of developing anew or improving various kinds of recreation areas and activities in the county. Those activities found to have the highest potentials were pack (canoe) trip camping and small game hunting. Specific areas or sites for the development of these activities, however, were not designated.

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<sup>a</sup>A. H. Pridgen, SCS Conservation Technician, Personal Communication.

Table 1-3. Pender County Game Species.<sup>a</sup>

Game Species	Estimated Man Days of Recreational Pursuit Provided (1972-73)
BIG GAME	
Deer	53,875
Bear	700
Turkey	32
WATERFOWL	
Ducks	616
Geese	198
OTHER GAME	
Squirrel	4,636
Rabbit	5,665
Dove	936
Quail	4,437
Raccoon	10,175
Fox	1,086
Woodcock	1,217
Opossum	4,372
Wildcat	336
Clapper Rail	152

<sup>a</sup>Source: Barick and Critcher, 1975. Wildlife and Land Use Planning with Particular Reference to Coastal Counties. North Carolina Wildlife Resources Commission. Raleigh, N. C.



### Urban

According to U. S. Census data, Pender County is entirely rural farm and rural non-farm, without sufficient population density to warrant the urban classification. For the purpose of this discussion, however, the term "urban" will refer to the build-up of even small concentrations of residential, commercial, and public or semi-public buildings.

There are five incorporated Towns in Pender County. Three of these towns, Burgaw, Atkinson, and Watha, are located in the large farming section of the county, west of the Northeast Cape Fear River. The County seat, Burgaw, is the largest of these towns, with about 9.5 percent of the county's population. Burgaw is located approximately in the center of the county at the intersection of Highways US 117 and NC 53, adjacent to the Seaboard Coastline Railroad. Burgaw functions not only as the political and geographic center of the county, but as a commercial and business center as well.

The remaining two incorporated towns, Surf City, and Topsail Beach, are recreation-based towns located on the coast. Both have small year-round populations and offer few commercial services in winter. In summer, however, the towns function as the focus of beach vacations for people from various parts of the state and country.

The centers of population in Pender County have traditionally been found in those areas of the county most intensely farmed. The

communities of Burgaw, Atkinson, Penderlea, Watha, Currie and Long Creek, for instance, grew as centers of area agricultural and marketing activities. West of the Northeast Cape Fear River former agricultural centers remain the population centers today. Recently, however, residential development has become influenced by industrial bases, and radiates primarily from the industrial sites of nearby New Hanover County. This trend combines with explosive summer-vacation, second home-retirement development in the zone between US 17 and the Atlantic Ocean. Residential development is currently heaviest in the Hampstead area and is spreading out in a band between US 17 and the AIWW.

Dwelling units in Pender County have traditionally been single family detached homes on large lots as opposed to a present tendency toward an increased number of smaller lots and mobile homes. There is very little apartment or condominium dwelling in Pender County; multiple dwellings that do exist are found mainly in the beach towns.

Commercial land use in Pender County has, like residential, begun to take on a new form as other land uses change. Traditionally, each town or community has had its "business district" in which most commercial activities were centered. Additional commerce was spread sparsely throughout the town or was located at the important crossroads of rural areas. Most commercial development that is occurring presently is along major highways such as US 17, US 117 and NC 53, especially where those are running between industrial sites, larger towns, and residential development.

## Industry

According to the N. C. Division of Commerce and Industry, there were in 1973, 25 firms known to produce marketable goods in Pender County. Most of these firms are agricultural or forestry based industries producing goods such as furniture, plywood and lumber; animal feeds, meats and packaged fruits. Poultry is the number one industry in the county producing an income of over \$5.5 million annually; the largest egg marketing establishment in North Carolina is located in Burgaw. Most (16) of the 25 manufacturing firms in the county are located in Burgaw with the next largest concentration (5) in Rocky Point.

The N. C. Division of Commerce and Industry maintains a list of industrial sites in Pender County with relevant information about the existing ownership, use, and condition of the sites. Most of these sites are located in or around Burgaw with additional ones found in Watha, Penderlea and Rocky Point. But as there is no county-wide zoning, there are few areas restricted to or from industrial location.

There is presently no full time Industrial Developer for Pender County; however, on October 25, 1975, in a County referendum, the residents of Pender County voted for establishment of an Industrial Commission to hire a full time Industrial Developer. A Local Industrial Development Corporation in Burgaw is able to assist financially in construction of industrial buildings, and the town of Burgaw has an Industrial Development Team whose purpose it is to encourage the location of industry in the area.

General Industrial Location Criteria for the Coastal Plains of North Carolina have been developed in order to describe the kind of sites sought by industry (Kiser 1975). These criteria include the following:

1. Reasonably level land capable of being graded without undue expense.
2. Direct access to high-speed all-weather highway facilities.
3. Reasonable access to railroad facilities.
4. Reasonable access to airport facilities for the movement of passengers and freight.
5. Available adequate water supply, sanitary sewer systems, storm drainage facilities, and power supply.

#### Transportation

Pender County is traversed by Hwy. US 17 (north-south) in the east, US 117 (north-south) in the center of the county and US 421 (northeast-southwest) in the west. In addition, it is crossed by NC 53 (east-west) in the center, NC 210 (east-west) in the south, and NC 50 (north-south) on the beach. According to the 1970 State Functional Classification System, US 17 is scheduled to be upgraded and included as a portion of the Coastal Corridor Highway. When completed, this highway will facilitate tourist travel along the eastern seacoast from Virginia south through the Carolinas and Georgia. Highway acquisition is scheduled for fiscal year 1978 and construction by 1981. The State Department of

Transportation has proposed long-range extension of I-40 from I-95 near Raleigh to Wilmington. However, there is no calendar nor any funding approved yet for the completion of any phase of I-40 from I-95 to Wilmington.

The Seaboard Coastline Railroad serves the county with two separate lines. The main line runs north-south through the center of the county connecting Rocky Point, Burgaw, Watha and Willard. The secondary line runs north-south near the coast along US 17, through Scott's Hill, Hampstead, Woodside and Edgecombe. Both lines provide freight service from Wilmington to counties to the north. Airports serving the county include the Wallace Municipal Airport on the northern edge of Pender County, New Hanover County Airport in the south, and two private airports.

#### Utilities

Pender County is provided with electrical power from three sources. Carolina Power and Light Company service areas run predominantly in bands along major highways and railroads. These bands are found along US 17 east to the AIWW; along US 117 and the Seaboard Coast Line Railroad through Burgaw; along NC 210 and 133 through Long Creek, Currie and Atkinson; and in the Penderlea-Willard area. The Jones-Onslow Electric Member Corporation service areas cover Topsail Island, extending westward around Watts' Landing, and to scattered localities along the Onslow-Pender County line. The remainder and largest part of the County is serviced by the Four-County Electric Member Corporation.

Telephone service throughout most of Pender County is provided by Southern Bell. The Southern Bell service area includes the whole county except Topsail Island and the Willard area, both of which are serviced by the Carolina Telephone Company out of Jacksonville.

There is currently so little industrial land use, land subdivision or extensive change being made in land use that few land use compatibility problems exist. As in many areas where new growth is unplanned and unregulated, Pender County land is undergoing strip development. New housing and commercial areas are being built along highways, producing miles of landscape dotted with cutover vegetation, billboards and driveways. In the beach areas, unplanned growth has resulted in degradation of some of the very resources which make the land attractive. But throughout most of the county, the most serious land use problem is the under-utilization of land and water resources.

CURRENT PLANS, POLICIES AND REGULATIONS  
CONCERNING LAND USE IN PENDER COUNTY

Plans

Existing Community Facility Plans for Pender County Area Compiled Within the last 10 years.

Water Supply and Sewage Disposal

- I. Inventory of Facilities - Regional and Water Supply and Wastewater Disposal Study, Wiggins, Rimer and Associates, 1973.

Summary of Contents

- A. General Background Information
  - 1. Population, economy
  - 2. Existing water supply facilities - public and private
  - 3. Problems related to water supply
- B. Conclusions
  - 1. Water
    - a. Atkinson is in need of water for peak demands and fire protection. The town has applied to the appropriate State and Federal Agencies for funds to construct a community water system.<sup>a</sup>
    - b. In Penderlea a large subdivision is being developed with a community water system. The developer wants Penderlea to join the system, but as landowners in Penderlea have had few problems with their water, he has met with little success.
  - 2. Wastewater Disposal
    - a. Atkinson has applied for funds to construct a municipal wastewater disposal system.
    - b. The only existing system is in Burgaw, and is operating at only half capacity. The town is applying for funds to construct an extension to serve the whole city and many surrounding areas.

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<sup>a</sup>As of September 1975, Atkinson, had made no formal application for funds.

II. Comprehensive Water and Sewer Plan - Region O<sup>a</sup>, Henry von Oesen and Associates, Inc., 1972.

Summary of Contents

A. Existing Conditions

1. Water supply sources
2. Future water demand for domestic and industrial purposes
3. Existing public water supply systems and wastewater collection and treatment systems
4. List of known industrial plants discharging wastewater into Cape Fear River Basin

B. Proposals

1. Regional Water Supply Plan - conceived design to serve entire Region "O" and the maximum number of people within the region to the maximum degree possible and considered economically feasible.
  - a. Certain portions of rural populations would have to rely on independent wells or "home" water systems for some time to come.
  - b. The plan, if implemented, is capable of serving approximately 80% of the people in Region "O" by the year 2000.
  - c. Portions of population in Pender County to be served by year 2000:

1980	-	63%
1990	-	61.9%
2000	-	63.0%
2. Regional wastewater treatment plan
  - a. Plans should be located adjacent to largest streams available to provide suitable effluent discharge situation.
  - b. Assign the largest reasonable and economically feasible area to be served by one plant.

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<sup>a</sup>Region "O" includes Brunswick, Columbus, Pender and New Hanover Counties.



- c. Certain existing plants can be designated to become regional plants.
- d. Small remote treatment facilities will be needed until discharge to a regional plant is possible and feasible.
- e. No provision is made for industrial wastes from large plants normally treated in industrial waste treatment plants owned and operated by the industry.

III. Comprehensive Water and Sewer Program, Pender County, North Carolina,  
F. T. Green and Associates, 1968.

Summary of Contents

- A. Methodology of Analysis and Study
- B. Background Basic Studies
  - 1. Population and economy
  - 2. Natural resources
  - 3. Existing land use
  - 4. Financing of water and sewer systems
  - 5. Water supply sources
- C. Plans
  - 1. Atkinson
    - a. Recommend single well with not less than 100 gpm capacity and storage tank with not less than 75,000 gallon capacity.
    - b. No installation of sanitary sewerage collection and disposal system prior to late 1970's. Such a system will probably be desirable between 1980-1990.
  - 2. Long Creek
    - a. Recommend installation of pneumatic water system utilizing artesian wells. Elevated storage is not of immediate concern - not until there are more than 200 customers.
    - b. There is little need for planning or installation of a sanitary sewerage facility prior to the late 1980's.

3. Surf City and Topsail Beach

- a. Expand existing source of water supply and distribution system to serve new customers.
- b. Both communities expect by mid-1980 to have population meriting a system of sanitary sewerage collection and disposal.

4. Penderlea

- a. Planning for a water system should begin in the early 1970's.
- b. Planning for waste disposal system should begin in late 1970's.

5. Maple Hill and Lee Webb

The two communities could adequately be served as an interconnected water supply and distribution system planned now.

Existing Land Use Plans for Pender County Area Compiled Within the Last Ten Years

- I. Land Development Plan, Burgaw, North Carolina, North Carolina Department of Natural and Economic Resources, Division of Community Services, October, 1974.

Summary of Contents

- A. Background
  - a. Population and economy
  - 2. Topography
  - 3. Soils
  - 4. Utilities
- B. Existing Land Uses
- C. Goals and Objectives
- D. Land Development Plan
  - 1. Central business district in center of town.
  - 2. Neighborhood area bordering Atlantic Coastline Railroad.
  - 3. Residential-Commercial areas incorporating the bulk of the land area within the town limits.
  - 4. Residential-Agricultural area principally surrounding the town.
  - 5. Industrial areas at edges of town extending somewhat outside the town limits.
  - 6. Office and institutional areas scattered principally within the town limits.
  - 7. Parks and recreation areas along waterways.
- E. Plan Implementation
  - 1. Zoning - revise and expand existing ordinance to cover corporate limits and 1-mile area surrounding.
  - 2. Subdivision regulations - to insure proper design standards are met and necessary improvements provided.
  - 3. Codes related to buildings - minimum standards for construction, plumbing, heating and electrical installations.
  - 4. Annexation - when significant amounts of residential development is proposed outside the corporate limits.
  - 5. Housing improvement

Existing Transportation Plans for Pender County Area Compiled within the Last 10 Years

I. Cape Fear Region Population and Economy Inventory and Analysis - Key Issues, Cape Fear Council of Governments, 1973.

While the above is not a formal Transportation Plan, it does make certain recommendations for the region that would affect Pender County.

- A. An improved overland transportation network between the Port of Wilmington and inland industrial and market centers. Such an improvement would lead to an expansion of activity at the port as well as to the attractiveness of the region for more general economic growth.
- B. The location of Region "O" to the east of the mainstream of north-south coastal movement through North Carolina has long hindered access to the area. An improved link (a four-lane route) between Wilmington and the Piedmont along the U. S. 421 corridor needs to be provided. Such would provide access to I-95 and the industrial areas to the northeast.

II. Transportation Goals for Cape Fear Region, Traffic Planning Associates, Inc., 1971.

Summary of Transportation Goals and Policies

- A. To provide a broad range of employment opportunities for the Region "O".
- B. Utilize selected major transportation facilities as a major catalyst for development.
- C. Provide urban public transit for all segments of the population consistent with public support available for transit.
- D. Provide a coordinated multi-modal transportation system for the region.

(There are currently no local utilities extension or open space and recreation policies in effect in Pender County).

Existing Local Regulations Affecting Land Use in Pender County

I. Pender County Soil Erosion and Sedimentation Control Ordinance

Effective Date: January 25, 1975

Application: All unincorporated areas within the geographic confines of Pender County and to incorporated areas as may by resolution adopt this ordinance.

Exclusions:

1. Certain agricultural and forestry activities
2. Activities covered under Mining Act of 1971
3. Those activities over which the State has exclusive regulatory jurisdiction.

Summary of Provisions

- A. A permit from the Lower Cape Fear Soil and Water Conservation District must be obtained before the undertaking of any land disturbing activities subject to this Ordinance.
- B. An erosion control plan shall be prepared for activities on tracts of one acre or more.
- C. On site inspections will be made to insure compliance.

II. Rules and Regulations Adopted by the Pender County Board of Health Relative to Sanitation in the County

Effective Date: July 5, 1954

Application: Geographic confines of Pender County

#### Summary of Provisions

##### A. An Ordinance Relating to Proper Excreta Disposal Requirements:

1. Pender County Health Dept. approval of sewage disposal methods for all places where people live, assemble or congregate.
2. Building inspection by authorized agent of P. C. Health Dept. before use, sale, lease or rent of buildings.

##### B. Installation of Plumbing or Sewage Disposal Plant in Pender County Requirements:

1. Permit from P. C. Health Dept. for construction or installation of plumbing or sewage disposal facilities.
2. Septic tanks must meet stated design criteria.
3. Disposal fields must be located at stated minimum distances away from water supplies, streams, dwellings and property lines; must have adequate seepage; must meet state design criteria.
4. Plumbing must be installed in accordance with N. C. State Building Code.
5. Permit from P. C. Health Dept. for sludge removal

#### III. Rules and Regulations Governing the Sanitation and Operation of Trailer Camps

Effective Date: July 5, 1954

Application: Geographic confines of Pender County

##### Summary of Provisions

1. Location only where adequate drainage exists.
2. A minimum distance of 10' between trailers.
3. An approved sewage disposal system.
4. Solid waste disposal containers.

5. An adequate and accessible supply of safe drinking water.
6. Adequate supervision to maintain orderly and sanitary condition.
7. Receipt of Trailer Camp Permit from P. C. Health Dept. before opening of camp to public; permit must be renewed annually.

(Local land use regulations are limited to those listed above.

There are currently no county subdivision or nuisance regulations, floodway ordinances, historic districts, building codes, or environmental impact statement ordinances, nor is there county-wide zoning).

## CONSTRAINTS

There are areas of Pender County in which, because of the physical condition of the land or water, particular kinds of development would be either especially costly or likely to cause undesirable consequences.

The inherent soil characteristics, water table elevations, susceptibility to flooding, and extent of key public services strongly influence private and public costs for development and management of Pender County. The physical restraints -- hence the unit cost of development -- for intensive urban development are least on these areas which now support agricultural production; the restraints and costs increase as sites become increasingly wet or removed from public services. Factors that restrain intensive development may favor extensive resource management -- forestry, wildlife, and recreation, for example.

### Physical

#### Flooding

The U. S. Geological Survey is mapping the Flood Prone Areas of Pender County. The purpose of these maps, as stated on each, is to "show administrators, planners, and engineers concerned with future land developments those areas that are subject to flooding." The flood prone areas shown on these maps have a 1 in 100 chance on the average of being inundated during any year. The flood areas are being delineated without consideration of present or future flood control storage that may reduce flood levels.



There is no single flood elevation for Pender County. Flood Prone Area maps have been completed for most of Pender County and show that flood level elevations change considerably across the county. For example, south of Rocky Point on Turkey Creek, the areas follow a 10' contour line; along the western edge of the AIWW, 15'; immediately west of US 17, 45-50'; and north of Penderlea 50'. Along the Pender County Outer Banks, the flood level elevation is between 10-15 feet msl.

#### Soils

Good soils with little or no development problems related to them are relatively scarce in Pender County (Bellamy et al. 1974).

Nearly 40% of Pender County is wetland. In order to use wetlands for most urban types of development, the water must be removed and kept off. Wetness, or a tendency toward flooding and ponding, is, even outside the wetland areas, the most common soil limitation in the county. Poor drainage has precluded development of large portions of the county; it has influenced highway location and tended to isolate some areas. Over 90 percent of the wetlands in the county are in the form of swamps or pocosins. Pocosins created by hardpans in the soil can be drained if the hardpan is broken; those occurring in muck soils overlying clay, on the other hand, are virtually unfit for any use that requires dry ground.<sup>a</sup> So far, attempts at draining either kind of pocosin on a large scale in Pender County have usually yielded unsatisfactory results.

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<sup>a</sup>Mr. A. H. Pridgen, SCS Conservation Technician, Personal Communication.

There are few soils in Pender County that will not provide a good building foundation since throughout most of the county, there is good clay subsoil with a high bearing capacity and low shrink-swell.<sup>a</sup> The Lumbee-Johns-Kalmia Association and Bladen-Lumbee-Craven are well suited for foundations, as is the Barclay-Pasquotank-Weeksville if the water is removed (U. S. Soil Conservation Service 1973). Adjacent to rivers in the county, however, there are often deep sands that, though too high in elevation to be in danger of frequent flooding, offer little strength for foundations.

Most of the soils in the county have either severe or moderate limitations for septic tanks, particularly those closely spaced. Wetness is the chief cause of problems with septic tanks, causing wastewater to saturate the soil and pond on the surface. The deep sands adjacent to rivers, and the Newhan sands along the beaches, however, offer such rapid drainage that too little filtration occurs, limiting the usefulness of septic tanks in them as a method of sewage treatment.

The principal limitation for the use of Pender County soils for most agricultural purposes is wetness and a tendency toward flooding; even in the best agricultural soils, artificial drainage is usually required for maximum production. The chief limitations for agricultural use of the deep sands along the coast and rivers are sterility and inability to hold moisture.

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<sup>a</sup>A. H. Pridgen, SCS Conservation Technician, Personal Communication.

### Steep Slopes

Land in Pender County is virtually level, with few areas where steep slopes occur. In some places along rivers, particularly the Black River, the water has cut through consolidated materials, resulting in steep bluffs. South of the Black River near the Sampson and Bladen County lines, steep slopes are predominantly in sands and sandy loam, so erosion problems do not occur; in the areas surrounding Ward's Corner, however, steep slopes are found in clays, and serious erosion can result when the soils are exposed.<sup>a</sup>

The steep slopes in some parts of the county have created ravines narrow and deep enough for water to be impounded without inundating vast areas of land. The only areas well suited for ponds are where the ravines exist over soils tight enough to hold water.

### Water Quality

The North Carolina Stream Classification System was developed in order to protect any existing high quality waters in the state, and to improve those waters of lesser quality, to the maximum extent practical. Improved quality in raw water supplies can mean simplified water treatment and reduced cost of water treatment plant operation. The result is more consistently high quality water delivered to the consumer.

Following public hearings, all stream sections in the county were classified on the basis of desired and existing uses. Below is an explanation of the "best usage" classification system as adapted by

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<sup>a</sup>A. H. Pridgen, SCS Conservation Technician, Personal Communication.

Fresh Waters:

- Class A-I - Suitable as source of water supply for drinking, culinary, or food processing purposes after treatment by approved disinfection only, and any other usage requiring waters of lower quality.
- Class A-II - Suitable as a source of water supply for drinking, culinary, or food processing purposes after approved treatment equal to coagulation, sedimentation, filtration, disinfection, etc., and any other usage requiring waters of lower quality.
- Class B - Suitable for outdoor bathing and any other usage requiring waters of lower quality.
- Class C - Suitable for fishing and fish propagation, and any other usage requiring waters of lower quality.
- Class D - Suitable for agriculture and for industrial cooling and process water after treatment by the user as may be required under each particular circumstance.

Tidal Salt Water:

- Class SA - Suitable for shellfishing for market purposes and any other usage requiring water of lower quality.
- Class SB - Suitable for bathing and any other usage except shellfishing for market purposes.
- Class SC - Suitable for fishing and any other usage except bathing and shellfishing for market purposes.

Water assigned Class "C" and Class "SC" and designated as "swamp waters" (Swp. w.) require a minimum dissolved oxygen content of only 3.0 parts per million.

There are no Class A-I, A-II or B streams in Pender County, all of its streams being classified "swamp waters." All except three streams in the county are classified C, D, or SC; Beasley's Creek, Bishop Creek, and Old Topsail Creek are classified SA. The present use of these three streams is forest and fishing.

Sources of Water Supply-Recharge Areas

Ground water comprises the sole source of water supply for both public and private systems in Pender County (Wiggins-Rimer & Associates 1973). Subsurface water of reasonable quality and quantity can be found throughout the county, as the area is underlain by a vast aquifer

system from which potable water can be drawn at various depths. There are four geologic strata occurring in the aquifer system underlying the county. Most of these strata occur in a wedge-shaped form, dipping generally 20 ft/mile (Laymon 1965). Some strata exist only in limited areas, outcropping or disappearing toward the western part of the county.

Pleistocene and recent surficial sands cover most of Pender County and constitute the principal water source for individual wells and rural domestic supplies in the county (Von Oesen and Associates 1972). In the surficial sands, water usually occurs under watertable conditions within 15 ft of the land surface though in the beach areas, this water may be partly confined by clay in the lower part of the aquifer (Laymon 1965). The productivity of this aquifer is limited primarily only by its thickness; it is recharged directly by rainfall, and is easily subject to contamination. The surficial sands are the only potable water supply between the Cape Fear and Black Rivers, where the underlying strata contain brackish water (Wiggins-Rimer & Associates 1973).

The Yorktown clays, shell beds and marls occur on a limited basis east of the Northeast Cape Fear River. This formation is absent in the central and western parts of the county and, unlike the other strata in this area, does not thicken toward the coast (LeGrand 1960). The Yorktown is rarely used as a source of water supply.

The Castle Hayne limestone underlies the surficial sands in the northeast and southeast sections of the county, outcrops in the central portion of the county, and forms just a thin layer between the surficial and Cretaceous sands in the south. The Castle Hayne is absent from the western part of the county. The formation varies in thickness locally but, in general, thickens progressively toward the coast. In Rocky Point, it ranges between 10 and 40 ft thick; in Maple Hill, 40-100'; and in Topsail Beach, is about 70' thick (LeGrand 1960).

The Castle Hayne is not extensively used for water supply in the county, but is potentially valuable as a large, long term supply, especially in the east. In the beach areas the formation begins at 35' below msl and its waters occur under artesian conditions; its recharge area would, therefore, be expected to be located elsewhere, and not be vulnerable to contamination from the immediate area (Wiggins-Rimer and Associates 1973). In most places where it occurs to the west of the beaches, however, it begins less than 25' under highly permeable surficial sands. Under these conditions, a high recharge rate could be expected (Wiggins-Rimer and Associates 1973).

The quality and quantity of water from the Castle Hayne aquifer vary in different locations. It ranges from hard to very hard with a pH of 7-8; in the Surf City, Holly Ridge area, it is low in chlorides and high in iron locally; and at Holly Ridge, indications are that a specific capacity of 50-70 gpm/ft of drawdown can be obtained (Laymon 1965). Most

attempts to obtain good water from the Castle Hayne in the immediate beach areas have proved unsuccessful thus far.

The Peedee Cretaceous sands, limestones and marine clays occur throughout Pender County. For the most part, west of the Northeast Cape Fear River, the Peedee immediately underlies the surficial sands. Toward the east it occurs beneath, and is in hydraulic connection with, the Castle Hayne. In both cases, the Peedee is recharged directly by rainfall; in the beach areas, however, the formation occurs deep and its water is under artesian conditions. Recharge to the Pee-dee, therefore, probably does not take place in the immediate beach areas.

The Peedee furnishes water to many wells drilled west of the Northeast Cape Fear; wells in it vary from 50-200 ft deep and yield up to 300 gpm (Wiggins-Rimer & Associates 1973). In the eastern part of the county it is rarely used for water supply, as it can be high in chlorides and too deep to be used economically.

Subsurface water quality and yields for specific locations in Pender County can be determined only on an individual case basis with a test well. Often, water obtained from shallow aquifers will contain excessive amounts of iron. In some locations, local people have become accustomed to iron or hydrogen sulfide concentrations that others would find objectionable. The quality that can be expected can sometimes be estimated from the condition of wells nearby.



In general, satisfactory water can be obtained from some depth most anywhere in Pender County; and with the numerous existing watertable wells, most of the surficial sands throughout Pender County function, to a certain degree, as recharge areas.

#### Fragile

##### Wildlife Habitats

Less than 1 percent of the land and water area of Pender County is developed for urban purposes and only 11 percent is in cropland or pastureland (Ospina and Danielson 1973). The bulk of the undeveloped land in the county is forest or wetland that is being managed and utilized to varying degrees. Along the rivers and in most swamplands of the county a combination of wetness and dense vegetative cover has discouraged intense utilization or occupancy of the land; a scarcity of road networks through many of these areas continues to discourage human encroachment.

A variety of wildlife species inhabits most of the undeveloped land in Pender County, with population ratings varying with the quality of habitat offered in different locations. The Soil Conservation Service (1973) reports that deer, quail, raccoon, anadromous fish and warm water fish have good population ratings; all of the above have good existing habitat, as do bear. According to the SCS, there exists a potential for developing good habitat for cottontail rabbit, mourning doves, duck and turkey. According to the Wildlife Resources Commission

(Barick and Critcher 1975), a moderate deer herd occurs throughout the county with a high population on the Holly Shelter Game Land and on the adjacent hunting club lands; a moderate and stable bear population is present primarily east of the Northeast Cape Fear River; and a small population of wild turkeys exists along the river and in a few other locations. According to the Wildlife Resources Commission, all small game species occur, with foxes and wildcat common, and squirrel, quail, woodcock, snipe, raccoon, and opossum abundant; the primary waterfowl species is the wood duck, with other species such as mallard occurring in limited numbers.

Bluegill and redbreast make up about 48% of the fish catch in the county, with white perch, catfish, and other panfish making up an additional 35% (Barick and Critcher 1975).

Of the species listed by the NCDNER in 1973 as endangered, the American alligator and red-cockaded woodpecker do occur in Pender County and it is probable that the loggerhead turtle and Atlantic sturgeon occur in the county (Barick and Critcher 1975).

In addition to that land naturally suited for the regeneration of game, several public and private game management areas and wildlife preserves exist. In the Angola Bay State Game Refuge and the Holly Shelter State Game Management Area, wildlife and game are managed and protected for maximum productivity and proper stocking. On the Black River, near the Bladen County line, 12,000 acres of privately owned predominantly riverfront property have been used over the years to raise

various wildlife species including quail and turkey.<sup>a</sup>

#### Natural and Scenic Areas

All three rivers of Pender County are listed on the North Carolina "Inventory of Natural, Scenic and Historic Areas." The Cape Fear and Northeast Cape Fear are both wide, deep and slow moving rivers with hardwoods the dominant trees; both rivers are presently used for swimming, boating and fishing, commerce and industry, and limited camping; both are easily accessible at numerous points.

The Black River forms part of the western boundary of Pender County and flows through Grady and Canetuck Townships. It is a narrow, winding river with wooded shores and very black water. The Black River has been recommended for designation in a state-wide Natural and Scenic Rivers Program. The purpose for such designation is the "preservation of esthetic and recreational qualities for the public," and avoidance of "uncontrolled development and private use" (Natural, Scenic and Recreational Rivers Committee 1971). According to the report of the Rivers Committee, because of difficult logging conditions, the bottomland hardwoods on the immediate floodplain of the Black River have not been disturbed by logging operations; the soils along the stream are sandy loam causing little siltation to occur even during heavy runoff. The Black River can provide a beautiful and scenic route for the small boat enthusiast.

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<sup>a</sup>A. H. Pridgen, SCS Conservation Technician, Personal Communication.

### Archeologic and Historic Areas

There are three sites in Pender County listed on the National Park Service's National Register of Historic Places; one of the three, Moore's Creek National Military Park, is federally owned. The Moore's Creek park is located one mile west of Currie at the junction of SR 1100 and NC 210. On the National Register but in private ownership are the Bannerman House and Sloop Point Plantation. The Bannerman House, located in the Players vicinity, .25 miles NE of the junction of S. R. 1522 and S. R. 1520, is presently used as a private residence. Sloop Point Plantation is located in Topsail Township, 7 miles NE of Hampstead, the junction of S. R. 1561 and U. S. 17. Sloop Point Plantation is presently a private residence. There are other sites throughout Pender County with potential recreational value, including old churches, houses and towns with architectural, political, religious or military significance.

### Wetlands

Almost 40% of the land area of Pender County is made up of wetlands, in which the land is covered by either standing or very slowly moving water virtually year-round. In some locations, the county's wetlands have been drained, filled, or otherwise altered in order to facilitate their utilization. In most cases, the draining of inland wetlands has proven extremely costly, and many such attempts have been unsuccessful. In the coastal wetlands, however, higher market land values have often warranted the high cost of removing the water and maintaining

dry ground; in these areas, wetland alteration has recently fallen under strict control of the State and Federal government, and is becoming less prevalent.

The chief value of the wetlands in Pender County is derived from their function as wildlife and fish habitat and reproductive areas. Alteration of these areas can severely affect the quantity and quality of many fish and wildlife species valuable to the economy of the area. Damage to wetlands occurs in various ways; for example: a) in the dredging of channels through coastal wetlands, the changes made in the nature of the channel bottom can result in long and short term changes in the number and kinds of benthic (bottom dwelling) species; and increased siltation often results from these dredging operations, affecting areas beyond the immediately altered site. The once common practice of dredging a channel through marshland and depositing the spoil on adjacent land for fill causes compaction of the marsh soil. Such compaction creates a situation similar to a hardpan, hindering the movement of water (including waste water from septic tanks) downward through the soil; b) channelizing, snagging, and straightening hardwood stream channels may significantly alter water temperatures thus affecting the makeup of life both in the water and on the adjacent lands; c) lowering water tables in swamps and marshes by only a small amount in a given site will often effect changes in water level in adjacent areas.

Within Pender County, there are three main types of wetland, each with a characteristic soil and vegetation type. The hardwood swamps

of the county are found principally on the bottom floodplains and low lying stream terraces along the major rivers and creeks. Such swamps, occurring in long narrow bands, occupy only about 6% of the county land area (U. S. Soil Conservation Service 1972); however, they extend along miles of waterways, including the Cape Fear, Black, and Northeast Cape Fear Rivers and Moores and Long Creeks. This type of wetland is characteristically wooded with deciduous species, but much of the timber has been removed from these areas in logging operations over the years. The swamps occur principally on soils of the Johnston-Lumbee association, which are subject to flooding and ponding.

A second kind of wetland in Pender County is the pocosin that has organic soils of the Dorovan-Ponzer association. Such wetlands are found occurring in a wide belt of land stretching between US Hwy. 17 and the Northeast Cape Fear River. These pocosins are characteristically upland bogs subject to ponding and flooding over long periods of time; organic surfaces more than 60 inches thick can be found overlying either sandy or loamy subsoils. The dominant vegetation is wetland shrubs, with sparse stands of merchantable tree types. These pocosins are well suited to wetland wildlife management, and poorly suited to commercial forestry. Both the Angola Bay State Game Refuge and the Holly Shelter State Game Management Area are located in this type of wetland.

The third kind of wetland in Pender County is the tidal marshland located the entire length of the county's coastal sounds and creeks and within the influence of regular lunar tides. These estuarine marshes and tidal flats are found covering all but the high sand ridges, dunelands

and marine forests of this area, yet cover less than 4% of total county land area (U. S. Soil Conservation Service 1972). The dominant soil found in these areas is the very poorly drained Capers soil, subject to daily and frequent tidal flooding; the dominant vegetation is salt marsh grass.

For the purpose of better defining their significance, tidal marshes can be divided into two categories: low tidal and high tidal marshes. Low tidal marshland is defined as that consisting primarily of Spartina alterniflora and usually subject to inundation by the normal rise and fall of lunar tides (Coastal Resources Commission 1975). The particular significance of the low marsh is based on its high yield to the estuarine waters of organic detritus, which serves as a primary food source for various species of finfish and shellfish, such as menhaden, shrimp, flounder, oysters, and crabs. The roots and rhizomes of the Spartina alterniflora serve as waterfowl food, and the stems as wildlife nesting material. Low tidal marshes also help to retard shoreline erosion.

High tidal marshland is subject to occasional flooding by tides, including wind tides, and is characterized by a variety of marsh grasses, including Juncus roemerianus and various species of Spartina. The high marshes also contribute to the detritus supply of the estuarine system and support a diversity of wildlife types; they function as effective sediment traps and as a further deterrent to shoreline erosion.

Much private development has already occurred along the tidal marshes of Pender County, particularly in places adjacent to the higher land of Topsail Island and along the Intracoastal Waterway. The Intracoastal Waterway is used extensively for water transportation, fishing, and related water sports; the adjacent marshland has been used as sites for homes, piers and business enterprises supporting the Waterway activities. With bridge and highway connection to the mainland, and commercial boating facilities available, much of the marshland adjacent to Topsail Island is readily accessible to the public.

#### Estuarine Waters

The estuarine waters that surround the coastal wetlands in Pender County are probably the most productive natural environment in the county, supporting many fish and shellfish species for part of all of their life cycles. According to the statutory definition G. S. 113-229(n) (2) estuarine waters in North Carolina include all of the waters of the Atlantic Ocean within its boundaries, and all the waters of the bays, sounds, rivers and tributaries thereto seaward of the dividing line between Commercial Fishing Waters and Inland Fishing Waters; the dividing line between these waters has been established for each body of water by agreement between the N. C. Department of Conservation and Development (now DNER) and the N. C. Wildlife Resources Commission. The following waters in Pender County are classified Commercial Fishing Waters and, as such, are designated estuarine waters of North Carolina:



- 1) The Cape Fear River below Kings Bluff Locks Thoroughfare;  
the Black River below the point where the Thoroughfare  
joins the Black River;
- 2) The Northeast Cape Fear River below the Lanes Ferry  
Bridge;
- 3) Batts, Old Topsail, Mullet Run, Polly Branch, Virginia  
(South Prong), and Bishops Creeks;
- 4) Beasleys Creek below the Narrows.

#### Public Trust Areas

The State of North Carolina supports the traditional public rights of access to and use of lands and waters designated Public Trust Areas for purposes including navigation, fishing and recreation. Public Trust Areas include estuarine waters, navigable water bodies to their ordinary high water marks, and all lands beneath these waters. The State allows appropriate private development within Public Trust Areas, provided that the development not be detrimental to public trust rights.

#### Ocean Beaches and Sand Dunes

Pender County has 15 miles of barrier island ocean shoreline, 10.8 miles of which are extensively developed and within municipal jurisdictions. The Pender County barrier islands begin at Rich Inlet (the New Hanover County line) and extend past Old and New Topsail Inlets to the Onslow County line. The ocean beaches of the islands are characteristically wide and sandy with moderately high foredunes occurring

all along the shoreline; oak-cedar maritime forests occur in most areas of higher elevation behind and in the protection of the foredune.

There are approximately 4.2 miles of barrier island southwest of New Topsail Inlet that are divided into two sections by Old Topsail Inlet. Both sections are privately owned, undeveloped, and were cited in the 1955 National Park Service "Seashore Recreation Area Survey." The northernmost section, Hutaff's Beach, is similar in character to the beach north of Surf City, with fair vegetation, moderate dunes, and a wide beach. South of Hutaff's Beach is Foy's Beach with more extensive maritime forest, sizeable dunes and a wide beach. Both of these islands are adjacent to the AIWW but are inaccessible by road.

The ocean beaches consist of unconsolidated soil material without vegetative covering; they are characteristically of a larger soil particle size and lower slope than the adjacent sand dunes into which they grade. The character of the sand deposits on ocean beaches is dynamic in nature, responding to fluctuations in the forces which cause their deposition and erosion. Tidal action, littoral currents, and storms cause a continual movement of sand both along the beach and between the dunes and deeper ocean waters. The resultant changes in beach morphology cause the shoreline, theoretically demarking the confluence of land and water, to shift to the point of being virtually undefineable.

The ocean beaches are one of the most valuable natural recreational resources in Pender County, and are extensively utilized as such. Their dynamic nature, however, precludes safe and cost effective

structural development on them without the use of sound engineering practices established for coastal hazard areas.

The foredunes along most of Topsail Island have been described as relatively large, 12-20' in height, with no rear dune and very little movement of the sands inland (Boyce 1953). Where undisturbed by development activities, most foredunes in the Pender County portion of the island are relatively well stabilized by vegetation, with herbaceous and shrub zones on the lee side beginning just over the crest of the dune. Foredunes occur all along the coast of Topsail Island to within about one half mile of New Topsail Inlet. Near the inlet, foredunes are low or undeveloped especially where recent sand accretion has occurred.

Sand dunes are valuable both for their aesthetic appeal and for the protection they afford the land behind them. Where stabilized by vegetation, a foredune can act as a temporary buffer to the erosive effects of storm wave action. For the most part, however, dunes are relatively unstable land features over time and, as such, are hazardous areas for the location of permanent structures.

#### Excessive Erosion Areas

"Storm erosion of beaches and dunes of the North Carolina coast has always occurred, but it has not been a serious economic problem until recently when increased development of beach front property has taken place" (Knowles, et al. 1973). Knowledge of the patterns of coastal erosion is essential to the safe and productive development of a coastal region.

The continual erosion and accretion occurring along a beach result in a gradual change in the location of both the high water and dune lines over time; excessive erosion and accretion as accompany large storms, can affect a change in the location of these lines very rapidly. In the course of a large storm, great quantities of beach and dune sand can be eroded from a site and replaced by subsequent accretion, with no net erosion resulting. Structures situated on these sands, however, once removed, are seldom replaced intact. Planning for safe development of beach front property must take into account both long term erosion trends, established from historical records, and the probability of extensive shorter term erosion losses predictable by scientific study.

A comparison of mean annual erosion and accretion rates occurring along Pender County beaches between 1938 and 1972 reports only minor changes taking place annually in the dune and high water lines of Surf City and Topsail Beach, accretion of the duneline between Old and New Topsail inlets, and erosion of both dune and high water lines between Rich and Old Topsail inlets. Table 1-4 shows these rates of change in four sections of Pender County Beach.

Table 1-4. Mean Annual Rates of Change (feet per year), 1938-1972.<sup>a</sup>

	Surf City	Topsail Beach	New Topsail to Old Topsail Inlet	Old Topsail to Rich Inlet
High water line	0.1 erosion	0.1 accretion	9.6 accretion	5.0 erosion
Dune line	0.5 accretion	1.2 erosion	2.1 erosion	5.7 erosion

<sup>a</sup>Source: Wahls, H. E. 1972. A survey of North Carolina beach erosion by air photo methods. Raleigh, N. C.

The amount of dune erosion that will take place during a storm of a given frequency depends on several factors, primarily the storm surge level, the height and massiveness of the dune, and the distance of the dune from the mean water line (Knowles, et al. 1973). Along Pender County beaches, the calculated recession from the toe of the dune during a storm with an expected frequency of once in twenty-five years is approximately 112 feet (Knowles et al. 1973).

Erosion and accretion occur normally along the watercourses of estuarine marshland in Pender County, but generally to a much lesser degree than along its beaches. Erosion in the sound and along the intra-coastal waterway is often accelerated by the wake of motor boats; accretion in these waters is accelerated when sands and silts, carried

by streams from the mainland, settle out in the calmer waters of the sounds. Costly bulkheading of sound front property and maintenance of navigation channels is often required for developments in these areas.

#### Resource Potential

##### Natural Scenic and Recreational

Pender County has a variety of areas with natural, scenic or recreation resource potential located throughout its territorial boundaries. In some of these areas, the resource potential is not fully realized partially because it is not fully understood; incomplete and sometimes contradictory reports of the native biota, geology, condition, and ownership of specific sites yield insufficient information on which to base realistic assessments of an area.

Table 1-5 lists those areas which have been suggested as having resource potential as natural areas.<sup>a</sup>

There are two areas of Pender County with natural and scenic recreation value which are owned and managed by the State of North Carolina. The 22,000 acre Angola Bay State Game Refuge, located in the north of Holly Township bordering Duplin County, is a Carolina Bay, low, wet and heavily wooded. The dominant tree species in this wetland area are oak, gum and pond pine; bear and deer are present and protected throughout the refuge. Due to a lack of roads, Angola Bay is presently

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<sup>a</sup>Source: File material supplied by Robert Tuelings, DNER Division of State Parks.

Table 1-5. Areas With Possible Natural Resource Potential.<sup>a</sup>

Site	Location	Description
Clear Pond	Rocky Point Township, southeast of Rocky Point: Lat. 34° 23'; long. 77° 51'	Deep clearwater pond (in an area characterized by dark water ) located on top of a hill or bluff; origin undecided, possible limestone sinkhole; pre- sence of rare flora probable.
McRae Farm Marl Outcrops	Near Rocky Point at junction of US 117 at NC 210.	Presence of nutmeg, hickory and other rare plants.
Camp Kirkwood (church camp)	One mile off US 117 near Watha.	Bluff area where galax grows.

<sup>a</sup> Further evaluation of the above or other areas could result in the designation of some areas as Complex Natural Areas, Areas That Sustain Remnant Species or Areas Containing Unique Geologic Formations. There no Registered Natural Landmarks in Pender County.

almost inaccessible to the general public. The 60,000 acre Holly Shelter State Game Management Area is located in Holly and Topsail Townships, east of the Northeast Cape Fear River. Some 6,000 acres of this area constitute the Holly Shelter Creek Area, a scenic Forest Creek used for camping, fishing and woodland. Slow, narrow, shallow and winding, the creek is mostly swamp, with deciduous trees dominant. The remainder of the game management area is used as a State Game Refuge, with deer hunting allowed on a limited and restricted basis; it contains several natural lakes, each accessible at several points.

Though all of Pender County is below 100 ft msl, there are some scenic high points in the western part of the county. The highest elevation in the county occurs 1 1/2 miles N of Atkinson on SR 1201, where an ocean shoreline terrace has been dissected by streams.<sup>a</sup> To the south of Atkinson, deep valleys with sheer bluffs have been formed by the Black River's cutting through well bedded sand and clay layers; a scenic drive can be found along parts of NC 53 south of Atkinson.

A recreation-historical-nature trail has been proposed for development along the 27 mile abandoned right-of-way from Richards in Pender County to Kerr in Sampson County. The trail, if developed, would provide for hiking across the southwest corner of Pender County, through Currie and Atkinson, on into Sampson County. Public hearings on the proposal are being held in the affected areas and a petition campaign in

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<sup>a</sup>A. H. Pridgen, SCS Conservation Technician, Personal Communication.



support of the trail has been launched by members of the Pender County Bicentennial Association.

#### Commercial

Pender County's prime agricultural lands are of resource value not only to the county but to the state as well. According to A. H. Pridgen, SCS Conservation Technician, the areas of the county best suited to farming are those on soils of the Lumbee-Johns-Kalmia Association, and the Barclay-Pasquotank-Weeksville Association, most of which are located between US 117 and US 421. The chief limitation of the soils in both of these Associations is a tendency toward wetness and flooding; proper drainage is required for maximum agricultural production. The predominant land use in areas with soils in these Associations is woodland and farmland; however, most of the urban development located west of the Northeast Cape Fear River, including the communities of Rocky Point, Long Creek, Atkinson, Burgaw, Watha, and Willard, is also situated on these soils.

Marl is Pender County's only mineral resource with an existing or foreseeable future market value. There are extensive areas in the central and northeastern parts of the county where good quality marl can be found at or near the ground surface. According to Mr. Pridgen, the center of the best marl deposits is in the northeast corner of the county, southwest of Maple Hill, just SE of Hwy. 53. At this time, however, the low potential value of the marl does not seem to warrant extensive efforts to protect it.

### Community Service Facilities

Some community facilities in Pender County are operated on a county-wide basis and some by individual communities and municipalities. Many of the facilities and services that are offered on a county-wide basis are headquartered in the town of Burgaw, located centrally in Pender County. Road networks west of the Northeast Cape Fear River are integrated and distributed in such a manner as to make the delivery of services from Burgaw efficient for that area; a "rule-of-thumb" is that all of this part of Pender County is within a 30-minute drive from Burgaw. The beach towns of Surf City and Topsail Beach, located on the east coast of Pender County, are well beyond a 30-minute drive from Burgaw; they are isolated from the bulk of the county by the Holly Shelter swamplands and its complete lack of throughroads. As a result, some county-wide services, including the rescue squad and solid waste collection, do not serve the beach areas. Other county services, such as the health clinics, hospital, and library, though available to beach town residents, are little used by them. By virtue of U. S. 17's N-S orientation, many services can be obtained more readily by beach area residents in Wilmington or Jacksonville.

### Health Services

Health services in Pender County are maintained primarily by the Pender County Health Department, with headquarters in Burgaw, under the supervision of the Pender County Board of Health. Pender Memorial Hospital, completed in 1951 and located in Burgaw, has an existing capacity of 47 beds and 12 bassinets in the nursery. There are four physicians and three dentists who operate privately in Pender County and constitute the hospital.

staff; one of these physicians is employed by the hospital to perform surgery for the whole county. The hospital maintains a "courtesy staff" of 30 consulting doctors, mainly from New Hanover County, in order to ensure that specialized treatment is available when necessary.

Services offered at Pender Memorial include x-ray, laboratory, dietary, surgical and delivery room; approximately 500 patients per month use the emergency room for treatment of injuries, routine sickness, and serious illnesses. The hospital is operating now at about 90 percent capacity, and expansion of a wing to increase the capacity to 125 beds is being planned.

The Pender County Health Center, completed in 1954, adjoins the hospital in Burgaw and houses both the Health Department Administration and the Health Clinics. There are presently in operation family planning, pediatrics, and immunization clinics, with a satellite clinic recently opened in Atkinson.

Under the direction of a non-profit organization, the Penslow Foundation, a new health center complex is being planned for the coastal area of the county. Plans call for construction of a building in Holly Ridge housing three doctors' offices, one dentist office, a pharmacy, waiting room, six treatment rooms, an x-ray room, and a laboratory. The clinic would be operated on a 24-hour basis to serve residents of the area from the ocean west to Maple Hill and from Hampstead north to Verona in Onslow County.

At present, there is a severe shortage of General Practicioners in Pender County, with only four to serve 18,000 people. As a result, many Pender County residents must go to doctors in Wilmington, and some clinics in the Pender County Memorial Hospital are held by New Hanover County doctors.

### Schools

Public education in Pender County is operated by the County, with 12 schools distributed throughout the jurisdiction. There are seven elementary schools, one located in each of the following areas: Hampstead, Rocky Point, Long Creek, on N. C. 53 between Atkinson and Rhyne Crossroads, Burgaw, Willard, and Maple Hill. There are four Junior High Schools distributed geographically, located in the West (Atkinson), East (Hampstead), Central (Burgaw), and Northwest (Penderlea). The two high schools are located each in the center of the two areas of highest population concentration: Topsail High School is located in Annandale and serves the beach areas and the U. S. 17 corridor, Pender High School is located at Rhyne Crossroads, virtually equidistance from Penderlea, Willard, Burgaw, Long Creek, Rocky Point, and Atkinson.

In recent years the high school curriculum has been accelerated with many educational courses added including commerce, vocational agriculture, home economics, trades, industries, and driver education. Beginning in the fall of 1975, occupational education will be available to all students in grades 7, 8, and 9 as well. A new comprehensive reading program for all students in grades 1-8 will be offered in the fall of 1975, with more individual instruction. A coordinated health service for all pupils is maintained jointly by the Pender County Board of Education and the Pender County Board of Health. Grades 1-12 are instructed in health and physical education.

Table 1-6. Pender County Schools, 1974/1975.<sup>a</sup>

Schools	Grades	Enrollment 1974/1975
Topsail High	K-3 and 8-12	477
Topsail Middle	4-7	270
Rocky Point Elementary	K-6	203
Long Creek Elementary	K-6	247
Atkinson Junior	6-9	242
West Pender Elementary	K-5	239
Pender High	10-12	775
Burgaw Elementary	K-6	586
Burgaw Junior	7-9	658
Penderlea Junior	4-9	426
Willard Elementary	K-3	149
Maple Hill Elementary	K-6	<u>136</u>
Total enrollment		4,409

<sup>a</sup>Pender County Board of Education.

### Libraries

The Pender County Library, begun in 1937, is located in Burgaw. In 1972 the library held 8,152 adult nonfiction titles, a large collection of unrecorded paperbacks, and a special collection of North Carolina publications and documents (Cape Fear Council of Governments 1972). The library on occasion borrows books from New Hanover County, and from the N. C. State Library; the library subscribes to 54 periodicals, has audio-visual aids, and special children's film programs, reading programs, and a bookmobile holding 1,600 volumes. Library personnel include a full-time librarian and three part-time assistants.

North Carolina Library Standards call for approximately one-half sq ft per person for the population served by the library system, with the smallest branch containing a minimum of 1,500 sq ft; the Pender County Library contains 4,560 sq ft, with the Standards indicating a need for 9,024 sq ft for the existing population (Cape Fear Council of Governments 1972). The library staff states a need for more science books and for a new children's room; additional space for a museum and a reference center are also desired.

### Rescue Squads

A volunteer organization, the Pender County Rescue Squad, Inc., was formed in 1961. The rescue squad serves the whole of Pender County except Surf City and Topsail Beach, each of which has its own squad; the community of Sloop Point is presently organizing a rescue squad as well. Emergency calls from around the county come to the County Squad central dispatcher in Burgaw who sends out trucks as needed. The rescue squad offers free courses and instructions in rescue work, and furnishes trans-

portation in an emergency; its members are pledged to duty at a moment's notice. The squad operates according to a duty roster published each month, with men and equipment on call 24 hours a day. The squad is maintained financially by annual appropriations from the town of Burgaw and Pender County, and by public donations and an annual fund raising project.

#### Fire Protection

Fire protection in Pender County is provided by municipal and community volunteer fire departments located in Atkinson, Burgaw, Hampstead, Long Creek, Maple Hill, Penderlea, Shiloh, Surf City, and Topsail Beach. The activities of the separate volunteer departments are coordinated by a emergency dispatch office in Burgaw; calls from throughout the county go into a central number in Burgaw where the alarm button is pushed to alert that fire department in the county closest to the area in danger. Each department has a limited service area, but there are mutual aid agreements between most of them calling for assistance when needed.

The most serious problem in the county's fire protection service is the need for adequate financing (Hardman and Mack 1973). Most of the departments receive revenue from special Fire District tax levies; however, most of the budget is raised by the firemen through time-consuming special fund raising activities which detract from the amount of time that could be spent in training to improve fire fighting abilities and in teaching fire prevention techniques. Lack of funding also increases the amount of response time for fire alarms because most volunteer units cannot afford to keep a man at the fire house full-time.

Volunteer fire department equipment is designed to fight structural fires only, and not brush or forest fires. Pender County is within the Whiteville State Forest District which maintains four fire-towers in Pender

County (near Edgecombe, Rocky Point, Ward's Corner, and Players); three additional towers are located immediately outside the county in Brunswick, Sampson, and Onslow Counties.

The N. C. Forest Service has designated three classifications of forest land in the county according to its fire condition and needs. High Risk areas are characterized by large fuel accumulation, wetness and/or a lack of roads; they tend to burn readily, or are virtually inaccessible to fire-fighting equipment. High Value areas are those that are growing the best marketable crops of trees or contain sites of other than forest value such as Moore's Creek Park; these are areas whose financial loss to fire would be greatest. The third category of forestland is High Risk and High Value with a combination of the above conditions. The Forest Service maintains in Pender County two crawler tractors in good condition and three pumps and tanks mounted on pickups.

Fire fighting services provided by the volunteer departments and the N. C. Forest Service function independently of each other, yet cooperatively when both structures and forest are endangered. In addition, most forest industries maintain fire fighting equipment and personnel and can readily be called upon to assist where needed elsewhere in the county.

The present status of fire protection in the county is summarized in Tables 1.5 and 1.6.

#### Solid Waste Disposal

There are at present three solid waste collection and disposal systems in operation in Pender County. The Topsail Township Landfill opened on July 7, 1975 to provide a waste disposal site for the beach areas of the county. Garbage collection in Surf City and Topsail Beach is operated by



Table 1-7. Pender County Volunteer Fire Departments, 1973.<sup>a</sup>

Department	Area Served	Number of members	Source of Funds
Atkinson	3 mile run	31	Town of Atkinson Budget Donations from County (\$1,800 per year), Contri- butions, Fund Raising Campaigns, Fire Tax District.
Burgaw	4 mile fire district from town of Burgaw	42	Public Funds, Donations, Contributions, County \$2,500.
Hampstead	no answer	21	In process of becoming Tax District, Fund Raising Projects.
Long Creek	3 miles of all weather roads from station	21	Local Fire Tax of 10¢/\$100, County Donations, Contri- butions, Fund Raising, County \$1,800.
Maple Hill	approximately 4 miles	31	Public County Funds, Donations Contributions and Fund Raising County \$1,800.
Penderlea	3 miles	27	Local Fire Tax of 10¢/\$100, Donations, Fund Raising, County \$1,800.
Shiloh	newly organized	newly organized	Newly organized.
Surf City	town limits	25	County \$1,800, Fund Raising Projects
Topsail Beach	town limits	24	Appropriated Public Funds, County \$1,800.

<sup>a</sup>Source: Hardman and Mack, 1973. Region "O" Fire Protection Inventory,  
Cape Fear Council of Governments, Wilmington, N. C.

Table 1-8. Pender County Fire Departments, Type and Condition of Equipment.<sup>a</sup>

Department	Type	Condition
Atkinson	1970 Ford Howe Triple Combination 750 G.P.M. Pumper; 1958 Chevrolet Tanker 1,000 gal., 350 G.P.M. Pump; 1946 Ford Sonford Triple Combination 500 G.P.M. Pumper; 1973 Van for carrying breathing apparatus and other small equipment.	No answer
Burgaw	1968 Ford 750 gallon Pumper; 1959 Ford American LaFrance 750 gallon Pumper; 1968 Chevrolet 1,250 gallons water carrier; 1966 Chevrolet Equip. Truck; all equipment radio equipped.	No answer
Hampstead	One Pump Truck 1,000 gallon capacity One Pump Truck 450 gallon capacity ordered new uniforms, have recently purchased panel truck for carrying equipment, 2 Scott air packs (for entering smoke filled rooms).	No answer
Long Creek	1937 Mack Jr., 750 G.P.M. Pump; 1946 Ford 300 G.P.M. Pumper; 1954 International Tanker, 1,000 gal. tank	Good Fair Fair
Maple Hill	1967 Chevrolet 6 cylinder-mid-shipmount pump, 500 G.P.M., 936 gallon water supply.  1954 International 6 cylinder front mounted pump 750 G.P.M., 1,200 gallon water supply	Excellent  Fair
Penderlea	One Pumper-tanker combination, 1,700 gallons; One 1,500 gallon tanker, and one 500 gallon pumper.	No answer
Shiloh	Newly organized.	
Surf City	One pumper truck, 500 G.P.M.; One pump truck, 750 G.P.M.	No answer
Topsail Beach	Howe 750 G.P.M. Pumper, 1972.	No answer

<sup>a</sup>Source: Region "O" Fire Protection Inventory, June 1973.

each of the two municipalities, but the landfill is operated by the county. Garbage is collected three times each week in the beach towns. In the winter months, when the population is low, few trips to the site west of the Surf City Bridge on N. C. 50 are needed each collection day. In summer, however, with the greatly increased tourist population, facilities and manpower are required to work long hours in order to keep up with the increased loads.

The Town of Burgaw operates a solid waste collection system. Compactor trucks collect waste materials and transport them to the county operated land-fill.

The whole unincorporated area of Pender County is provided with garbage pickup and disposal by a county system begun in February 1973.<sup>a</sup> There is one landfill for the area, located on S. R. 1640 four miles west of Burgaw. Residents of the county bring garbage to established collection boxes located in all communities and at several major crossroads; the collection truck makes as many rounds to each box as necessary two days a week, followed by deliveries to the landfill. The heavily populated Hampstead area, however, usually requires a third collection day each week on Saturday.

The existing solid waste collection and disposal system provides adequate service for existing needs in Pender County; where containers are overloaded, new ones are added. Presently, efforts are being made to obtain an additional collection truck. In the future, additional landfills located in various parts of the county could reduce the distance travelled between collection containers and the landfill, thereby reducing operating costs.

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<sup>a</sup>The Town of Atkinson provides regular house-to-house waste collection. Municipal crews deposit the material in county recepticals located on the outskirts of the town.

### Water and Sewer

As of June 1974 there were a total of nine public water systems in operation in Pender County; three of these systems were municipally owned, the remaining six served mobile home parks (Wiggins-Rimer and Assoc. 1973). Of the three municipal systems, only two, in Burgaw and Surf City, actually have wells; the third, Topsail Beach, buys its water from Surf City, but operates its own distribution system.

The Surf City Water System was established in May 1968 with the financial assistance of the Federal Housing Administration. The well system is located just west of the AIWW on N. C. 50, with an existing capacity of 516,000 gallons per day and a design capacity of 2.5 million gallons per day (mgd). There are approximately 500 connections to the system in each of the two towns, with a combined average summer water use of about 375,000 gallons per day. Water consumption in the towns varies with the seasonal changes in population, being lowest in off-season winter months.

The Town of Surf City is experiencing some problems with sedimentation and scaling in its distribution system due to the hardness of the ground water used for water supply.

The Town of Burgaw operates three wells, each 350 ft deep, with a combined maximum capacity of 1 mgd; the peak load sustained through January 31, 1975 was 0.35 mgd, leaving 0.65 mgd available over peak load (Burgaw Community Audit 1975). The town has an overhead storage of 175 thousand gallons of water. The Burgaw water system presently serves the whole town, but plans for extending the system to serve the area within a one-mile radius of the town are being considered.

The only public wastewater disposal facility in Pender County is located in the Town of Burgaw where wastewater is given secondary treatment before discharge into Osgood Branch. The plant has a capacity of 0.3 mgd and presently serves approximately 1,750 people; the peak flow sustained as of January 1975 was 0.28 mgd leaving a surplus capacity above peak of 0.02 mgd (Burgaw Community Audit 1975). There are presently areas in and around the Burgaw town limits which are not connected to the municipal system; because of the high water table and poor soil conditions, these areas are prone to flood the surface with sewage, causing nuisance conditions. The town is applying for funds to extend the sewerage system to serve all of the town and many of the surrounding areas that are experiencing problems.

In 1973 approximately 93 percent of the population of Pender County was served by private wastewater disposal systems, most of which serve individual single-family residences and rely on subsurface disposal methods (Wiggins-Rimer and Assoc. 1973). The problems with wastewater disposal in the county are widespread, and relate to the following three characteristics of the county: a high water table, poor soil conditions in some areas, and a population density which cannot support public wastewater collection and disposal systems.

In the Topsail Beach-Surf City area, the development of small lots has created overcrowded conditions for the septic tanks in use. The two towns are presently studying the feasibility of a regional wastewater disposal facility to cover the whole of Topsail Island.

SECTION II

ISSUES, OBJECTIVES AND STANDARDS

## MAJOR ISSUES AND GENERAL ALTERNATIVES

### East West Population Characteristics

In 1876 the North Carolina General Assembly established Pender County as a political jurisdiction separate from New Hanover County. At this time the Cape Fear and Black Rivers, and the lower part of the Northeast Cape Fear River functioned as natural barriers to overland transportation in the area and were adopted as the principal political boundaries between Pender and adjacent New Hanover, Brunswick, Bladen, and Columbus Counties. Governmental functions could efficiently be extended in the counties as far as the land surface permitted the construction of roads and communication networks to link outlying areas with the county seat. The rivers served as transportation and communication corridors between the separate jurisdictions. The Northeast Cape Fear River still functions as a barrier to east-west transportation in most of Pender County, but is no longer used for commercial navigation. The river, together with the Holly Shelter wetlands, effectively divides the county into eastern and western sections linked only by N.C. 210 in the south and N. C. 53 in the north.

For as long as agriculture was the principal economic activity in the county, the east and west sections developed in much the same fashion and were characterized by a rural-farm atmosphere, single family, detached dwellings on large lots, and higher densities and commercial activities centered in towns and major crossroads. The increase in outdoor recreational activity on the coast and industrial activity in New Hanover County combined with the overall decrease in agricultural activity in Pender County have resulted in a divergence of development patterns in the two sections in the last 10 to 20 years. In both sections, current development is heaviest

along transportation corridors. But the western section of the county maintains much of its rural-farm atmosphere even with a shift to non-farm employment); the population of existing communities has not increased significantly, there is little influx of new (non-Pender County) population, and there are few new communities or neighborhoods being developed. The eastern section, particularly between U.S. 17 and the AIWW, is experiencing an increase of new planned subdivisions accommodating new populations of both permanent and seasonal residents. New development in this section is generally recreation rather than farm oriented and is accompanied by an increase in tourist shopping facilities along U. S. 17.

The isolation of the eastern part of the county from the west, and from Burgaw makes the delivery of county services to the east inefficient. The eastern section has already begun planning for a medical facility to serve its residents, a separate landfill for the area has been established, and the two Topsail Island municipalities operate their own rescue squads. The eastern section property owners pay the same tax rate as the rest of the county, on property having a generally higher market value per acre than in the west; they contribute substantially to the County General Fund,<sup>a</sup> but feel they do not receive a proportional amount of county service. The differences in lifestyle of the two sections of the county create differences in the kinds of services desired as well as ability to pay for those services.

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<sup>a</sup>In FY 1973-1974 property owners in Topsail Beach and Surf City together paid \$125,156 to the County General Fund; comparable figures for the unincorporated parts of the eastern section are not available.



### Provision of Service Facilities

According to the U. S. Census of Population, in 1970 approximately 40 percent of the Pender County labor force commuted to work outside the county. More recent Census employment figures are not available, but the increase in homebuilding along U. S. 17, without a significant increase in job opportunities in the county, would indicate a strong likelihood that presently at least 40 percent of the labor force commutes. The employment in the county only 60 percent of the labor force implies on the one hand that a significant number of people find residence in the county attractive enough to outweigh the disadvantages of the required long drives to work. The rural atmosphere, uncrowded living conditions, and friendliness of the people are reasons often given for choosing to live in Pender County. But there are several disadvantages to both the public and private sector in having the county serve as a bedroom community, not the least of which is Pender's lack of a substantial tax base from which to draw revenue required for the operation of modern service facilities. Industrial land use produces a substantially higher property tax base than residential, agricultural, or forest land use. Most of the revenue required for the operation of community service facilities including schools, solid waste disposal, libraries, and hospitals is drawn from property taxes. To a certain extent, a population can choose to do without services, to accept the lack of services as an acceptable price to pay for a rural lifestyle; but when public health is involved, and health risks have to be borne by transient or outside populations as well as residents, the right to choose becomes more limited.

The soils throughout Pender County have moderate to severe limitations for proper septic tank operation; the surficial sands that cover the area recharge water table aquifers and some underlying deeper aquifers as well. Except in those soils that are perennially wet, properly constructed septic tanks with sufficiently large filter fields can operate efficiently in most any soil in the county. Where water table wells are located sufficiently far from septic tank filter fields and other sources of contamination, drinking water of acceptable quality may be obtained near the surface. But the determination of "sufficiency" in size of filter fields and location of wells is at best difficult to make and may change overtime as the ground becomes more saturated with wastes. The use of deeper aquifers for water supply can reduce the lot size required for septic tanks, and well fields can be protected from contamination by being isolated from sources of contaminants. But even where the risk of contamination of water supplies is reduced, contamination of surface waters may occur.

Throughout Pender County, the limiting factor for the use of septic tanks is population density; it must be sufficiently low. Throughout the county as elsewhere, the limiting factor for the cost-effective installation and operation of a public sewage treatment facility is the revenue base; it must be sufficiently high. The population of many areas of the county, particularly the established communities, is approaching the point where density is too high for continued use of septic tanks, but the revenue base remains too low to support public sewerage facilities.

Heretofore, sewage disposal and water supply in Pender County has been largely the responsibility of private property owners. Existing regu-

lations governing the installation of privies and septic tanks make it the property owner's responsibility to demonstrate that his facilities will not endanger his own health, the health of his neighbors, or the productivity of the surrounding environment. Developers selling residential lots are under no obligation to make lot sizes sufficiently large to accommodate private sewage disposal or water supply facilities, or to warn buyers of the difficulties that could be encountered in trying to accommodate those facilities on his lot. Longtime residents of Pender County are generally aware of the limitations imposed by existing soil conditions and water tables; people new to the area, especially those accustomed to publicly supplied facilities, need in some way to be warned of the pending problem.

The public sector in the county, either on a county or municipal level, is responsible for the general health and well being of its citizens and the tourist populations it invites to enjoy its recreation resources. The responsibility it must assume is if not the financial one of creating public facilities, then at least the legal one of assuring that new development in the area will not be detrimental to the well being of its residents or its natural resources.

#### Employment Opportunities

Pender County's function as a bedroom community creates additional problems for the private sector, particularly as the price of gasoline continues to rise. The financial burden of commuting may soon force even long-time residents of the county to leave the area and locate closer to their place of employment. Commuting populations often do their shopping near their place of employment, particularly if larger choices and lower

prices are available there; thus, money earned in neighboring counties is often spent in neighboring counties, depriving local businessmen of revenue badly needed for the expansion of local commercial facilities.

Since its initial settlement, Pender County's economy has been based on its natural resources, particularly its agricultural and forest resources. Changes in agricultural activities have reduced the manpower required for existing farming operations; past lumbering practices have reduced the quality of current forest production. There are virtually no valuable mineral resources in the county. Increased leisure time and access have raised the value of Pender's coastal recreational resources and the ability of tourist related activities to function as a source of employment for county residents. While forming barriers to highly developed transportation networks and urban land use, Pender County's wetlands have yet undeveloped outdoor recreation potential for hunting, fishing, sightseeing, and boating.

The county's natural resources, including its human resources, remain its most valuable commodities; the future prosperity of the county will depend on the care and imagination exercised in promoting the continued expanded use of its resources as the base of its economy.

#### Industry

On October 25, 1975, the residents of Pender County voted to authorize the County Commissioners to establish an Industrial Commission which will employ a professional Industrial Developer to attract industry to the county. Economic realities necessitate an expansion of industry within the political jurisdiction. A professional industrial developer working with local officials and businessmen can provide the county with

an opportunity to assess its potential for industrial location, establish criteria for the kind of industry that would best fit the stated desires of the people, and then conduct a full-time search for the desired firms.

Pender County's potential for attracting new industry is limited initially by the factors that limit industrial location in the region as a whole. The Lower Cape Fear area is characterized by a shortage of craftsmen and professional personnel, inadequate community leadership, deficient transportation facilities, limited services such as water and sewer, and inadequate cultural amenities. More importantly, the region retains an image of being slow, unproductive and not really interested in economic progress. An industry seeking a new location must first be induced to locate in the southern Coastal Plain of North Carolina, then in Pender County in particular.

Proximity to markets, available labor supply, and appeal of climate are factors involved in an industry's choice of a region; the individual county industrial developer can have little effect on regional level decisions (Kiser 1975). Within the region, however, Pender County can attempt to compete with neighboring counties by providing necessary service facilities to industrial sites and by improving its primary and secondary roads, health care facilities, the skills of its labor supply and the overall liveability of its communities.

An alternative to locating new industry in the county is the expansion of existing industries and markets. Improvement in facilities servicing existing businesses, advanced training in skills presently being utilized, and improvements in transportation networks between raw materials, manufacturing sites, and markets can encourage the expansion of businesses

owned and operated by residents of the county. Investment capital generated in the county can be retained and used to finance further expansion. County government's promotion of its native businesses can provide evidence to outside investors of a healthy attitude toward economic growth.

Any promotion of industrial growth in the county must be viewed as a means to an end, not as an end in itself. A labor intensive industry hiring local labor at acceptable wages can help raise the per capita income of a large segment of the population. A capital intensive industry, utilizing local physical resources only, provides little or no employment base to local residents. County services extending to industries hiring only outside labor can result in a net loss in benefits to the county in spite of an increased tax base. Tax abatements, low interest loans, and the insurance of capital investments can encourage the location of capital intensive industries by making capital less costly than labor. Any inducements or direct public investments should be directed towards attracting those firms which will help accomplish those growth objectives established by the people of the county.

#### Agricultural Markets

Agriculture in Pender County has become increasingly mechanized over the years, with a reduction in the total number of farms and increase in the average farm size. Production per acre has increased, as have the cash per acre receipts. Marketing facilities for most farm commodities produced, however, have not responded to increased yields, and most of the county's production continues to be sent to wholesale markets outside of the county. Grains, such as corn and soybeans, go mainly to Norfolk,

Virginia, and Fayetteville; tobacco is sent to warehouses in Wallace, Clinton, Kinston and Whiteville, and poultry (broilers) are grown on contract and sent to Rosehill or Raleigh. There are markets in the county for only two commodities; blueberries are packaged and sold retail from Burgaw; locally grown eggs, together with those bought wholesale from farmers farther south, are graded and packaged in Burgaw.

Some facilities exist locally for temporary storage and loading of grains to be shipped out of the county; the reliable outside markets assure farmers of buyers for the grain they produce. There has been some increase in grain storage on individual farms, but most farmers must sell their grain wholesale at harvest time, then later in the year buy grain retail in order to feed their livestock. The Petersburg, Virginia, market for locally grown grapes in 1975 was inadequate to handle all of the grapes produced; a secondary outlet in Georgia helped to move out all of the fruit harvested, but did not help to increase the price of the product.

According to Pender County Agricultural Extension Agent, Bill Walker, lack of volume is the main barrier to the establishment of local markets for local produce. A sufficient amount of a given wholesale product must be available to justify the costs of processing, packaging, and shipping to consumers. In many areas of the country, required volume is achieved by farmers' establishing co-ops and working together to buy and sell wholesale. The Pender County tendency is to buy retail and sell wholesale, forsaking the revenue that would be produced by an additional turnover of cash.

Because of the trend in agriculture towards less labor/more capital intensive production of commodities, agriculture in the future can

be expected to offer less and less employment opportunity. The establishment of processing, packaging and retail markets for farm products, on the other hand, is a potential source of increased employment and should be actively encouraged in the county. One commodity with local market potential is grapes; a winery in the county could offer both a reliable market for the product and an employment base for non-farm labor.

While adequate volume for grain marketing is probably not available in the county, increased local storage facilities could reduce the revenue currently lost by farmers having to sell their grain wholesale only to buy grain later retail.

#### Forest Resources

The current quality of forest resources in Pender County is limited partly by the physical condition of the land and partly by past timbering and agricultural practices. Approximately 80 percent of the county is in forest, 99 percent of which is on land with a low (Site Class 4 or 5) inherent capacity to grow crops of industrial wood. The occurrence of the water table at or near the surface limits the growth potential of many tree species by limiting the amount of available oxygen. The high acidity of swamp waters limits the kinds of nutrients available for some species, often resulting in dwarfed and stunted trees. According to Derryl Walden, N. C. Forest Service District Forester, improved drainage would raise much of the county's forestland to Site Class 2 or 3. Along riverine floodplains where native cypress and other swamp species occur, yields of high quality lumber can usually be found; but in many cases, the steepness of adjacent slopes, the low bearing capacity of muck soils and the density of surrounding vegetation discourage the removal of timber from these areas.



Prime agricultural soils are also prime soils for forestry. Historically, these soils have been the first to be cleared of timber and put into agricultural production. For many years, farming practices did not include soil conservation measures, and soil nutrient depletion and erosion often resulted. When soils were no longer able to produce sufficiently high agricultural yields, they were abandoned and allowed to return to forest. But the second and third growths of trees, on depleted soils, are rarely of as high a quality as were initially present on the site.

Forest operations in the county have traditionally been characterized by the removal of the highest quality timber with poorer quality trees left to regenerate future growth. Successive cuttings continued to remove those trees with potential for high quality seed production, resulting in residual stands of timber with successively poorer growth potential. In many cases, careless timber removal practices resulted in further degradation of a site and a higher susceptibility to fire.

Approximately 25 percent of the commercial forestland in Pender County is owned by forest industries who have initiated maximum production and sustained yield management practices. Well over half of the forestland is in private individual ownership, some in large parcels, some in small woodlots, but little intensively managed. Stand efficiency on most of these holdings could be improved by more effective replanting and reseedling, protection from fire and disease, and more efficient utilization of all forest products.

The N. C. Forest Service offers assistance to small woodlot owners in establishing and managing good quality timber stands especially

on land that has previously been cut over or neglected. The N. C. Forest Service encourages proper site preparation and stand regeneration techniques, and timber removal practices. Some of the larger industrial wood product companies, such as Weyerhaeuser and Federal Paperboard, unable to supply all of their timber needs from their own forest lands, assist individual land owners in forest management, and assure markets for trees grown.

The major markets for Pender County forest products are located outside the County. Most sawtimber is bought by Acme Wood and Georgia-Pacific in Columbus County, Godwin's Sons in Duplin County, and Corbett Lumber in New Hanover County; most dimension timber is bought by Acme Woods and Georgia-Pacific; and pulpwood is bought by Weyerhaeuser in Duplin and Federal Paperboard in Columbus County.<sup>a</sup> There are a few sawmills in Pender County such as Pender Lumber and Burgaw Lumber in Burgaw, and Atlantic Timber in Hampstead; but only a small percentage of the timber grown in the county is processed in the county.

The establishment of more local markets for forest products, as for agricultural products, could increase the revenue received by the county by increasing retail sales and local employment opportunities. Much of the timber harvested in the county is sold as pulpwood for paper production, and pulp and paper mills require both large capital investments and large volume. Sawmills and veneer mills, on the other hand, producing more specialized wood products, can vary more in size of both capital investment and volume of production and can more easily be established as new industries.

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<sup>a</sup> Derryl Walden, Whiteville District Forester, N. C. Forest Service, Personal Communication.

### Drainage

The primary limitations on land utilization for any purpose in Pender County are imposed by the drainage system. Approximately 40 percent of the county is classified Wetland, and extensive additional areas are susceptible to flooding and ponding during periods of heavy rain. Wetness has influenced the location of highways and urban development, and places serious constraints on the logical pattern of urban expansion. It is the degree of wetness of most soils rather than their fertility that determines their value for agricultural and forestry purposes; costs of production are seriously influenced by the cost involved in maintaining a low water table. Most industrial forest lands must be drained at least temporarily to ensure that seeds and seedlings survive the first few years after planting. Wetness causes difficulty in fire fighting and the removal of timber from some forest lands because of the tendency of heavy equipment to sink in the soggy soils. The outdoor recreation value of many undeveloped parts of the county is restricted because of the high costs involved in access road construction.

In urban areas of the county, drainage ditch systems have been designed to reduce ponding by facilitating runoff. Ditches from urban areas, farmland, and road easements empty into nearby creeks and rivers causing large flows to occur quickly after the beginning of storms. Because the immediate flood plains of most major watercourses in the county are virtually undeveloped, flooding causes little direct damage.

Many smaller watercourses, however, naturally winding with slow moving water have become clogged with silt and debris and choked with overhanging brush. Until paving became common, tremendous amounts of silt

were eroded from roadways, carried by ditches, and deposited in nearby streambeds. Logging activities for many years left tree tops and branches discarded on stream banks; high waters washed the debris into the streams, where it collected in narrow channels creating virtual dams. It is becoming a common agricultural practice in the county to plant without cultivation in order to reduce the loss of topsoil and its deposition downstream; but topsoil deposited years ago continues to clog waterways, and with debris dams, causes increased flooding. The recreation value of many streams has been reduced as waterways, once navigable, have become impassible.

Conscientious efforts are being made throughout the county to reduce siltation and debris collection in streams. But the flooding problems that already exist cannot be relieved unless the existing snags are cleaned out. According to SCS Conservation Technician, A. H. Pridgen, Long Creek, which drains large amounts of farmland, is the most severely clogged stream in the county, causing floodwaters to back up in local drainage ditches. Shelter Creek drains the Maple Hill area to the Northeast Cape Fear River. Flooding problems in the area have forced some farmers to give up acreage that had long been in production.

According to Pridgen, any efforts to clear out streams must be done with public funds on a watershed basis, beginning at the outlet and proceeding upstream. The scale of such undertakings is beyond the financial resources of riparian landowners, and the benefits derived from such projects would affect other property owners as well.

There are legitimate fears in many areas about potential adverse environmental effects resulting from stream clearing, snagging, and,

especially, straightening projects. Silt and debris cleaned from a stream bed must be deposited nearby, and even when seeded to prevent re-entry into the stream, spoil piles are usually unsightly. Temporary alteration of fish and some wildlife habitat is unavoidable, and the required road access through the project area alters adjacent vegetation patterns. In order to reduce the cost of cleaning miles of winding streambeds, straight channels can be cut across a floodplain and stream flow diverted to the new channel. Benefits gained by the channelizing approach, however, have not yet been adequately demonstrated to outweigh the damage done to the stream system.

The benefits of any extensive draining operations in the county must be weighed against the adverse impacts that can be expected to result. The value of flood prevention must be weighed against the value of fish and wildlife in an area, and the land use to be protected weighed against alternative land uses.

### Priorities for Public Service

The provision of public services in Pender County is now and will continue to be limited by three major factors. In terms of acreage, the county is extremely large, in terms of population it is extremely small, and in terms of tax revenues it is poor. Its property tax revenues in FY 1973-1974 amounted to less than one-quarter the revenues of Brunswick County (chosen for comparison because of its similar size, physical characteristics and location). Pender's per capita income is so low that increased taxes to pay for increased services would probably impose more of a burden than the new services would relieve.

There is a strong feeling of self-reliance in the county -- a feeling of "if you want it done; do it yourself." Many services now in operation were initiated, established and are operated primarily by voluntary manpower and private contributions. State and Federal grant monies are sometimes solicited, but heavy reliance on outside financing is generally opposed.

Desires for economic growth in Pender County are generally only desires for economic survival. Parents want to see their children able to remain in the county after high school graduation; young people want to be able to work in the same county in which they live. Most county residents are fully aware of the health and safety problems associated with inadequate private sewage disposal and water supply facilities. They realize the necessity of maintaining standards of health care and education comparable to standards set statewide. Most residents, though many reluctantly, see an expansion of

industry as the key to producing sufficient economic progress to allow them to hold their ground against the rising costs of essential services.

But as economic progress will probably be slow in coming, desires for improved services must be tempered by financial feasibility. The primary public service needs and levels of responsibility are summarized as follows:

#### Roads

There are two principal problems with the internal road system of the county: 1) The isolation of the eastern section from the west is augmented by the limited road network connecting the two sections. Between Hampstead and Burgaw, the two most densely populated communities, NC 210 winds for miles adjacent to the Northeast Cape Fear River before its junction with NC 117. 2) Many roads in the western section of the county, connecting forestry and agricultural resources with markets, have weight restrictions that severely limit the loads that can be transported. County residents can be subjected to heavy fines for over use of the only roads available for transportation of their agricultural and forest products.

#### Sewer and Water

The establishment of a county-wide sewer and water system in Pender County is not only far beyond the financial capability of the county, but also exceeds its needs. Population densities requiring sewer systems and public water supplies are generally limited to the more populated communities. The responsibility for sewer and water facility establishment where needed is generally considered a

municipal function. The county's role in providing for such facilities can best be carried out by encouraging new development to occur either within the reach of municipal facilities or in areas where no public facilities will be required.

Schools, Health Care, Solid Waste Collection, and  
Employment Opportunities

Health care, education, and solid waste collection are county-wide needs and accepted county responsibilities. Such services can best be rendered by distributing facilities as evenly as possible to existing communities throughout the county. Economic development is likewise desired throughout the county and its distribution, while ultimately dictated by the needs of industry, can be encouraged to occur adjacent to population centers.

Housing and Drainage

Adequate housing and drainage programs designed to upgrade blighted urban areas and prevent unnecessary flood damage are currently being undertaken by a community development committee. Federal grant monies for such projects are available on a limited basis. Their appropriation is based on the needs of the county, as evaluated by professionals and county officials, synthesized in specially scheduled public hearings. Specific projects to be undertaken each year are to be determined by careful study of those areas of the county in greatest need of renewal.

Fire Protection and Rescue Service

Fire protection and rescue services in Pender County are currently and will continue to be operated by chartered volunteer organizations receiving annual appropriations from the county. The



volunteer groups from each community are encouraged to form mutual aid packs, increase training of personnel, teach the public fire prevention and safety practices, and make careful inspection of new and old buildings in order to reduce the incidence of fire damage. Where existing water supplies are inadequate for fire protection, municipal governments are encouraged to cooperate with fire departments in determining the most adequate means of obtaining sufficient quantities of water.

#### Recreation, Historic and Natural Resources

Pender County residents are proud of their heritage and interested in seeing their historic resources protected, and as much as possible, restored. Private citizens are encouraged to inventory historic buildings and areas and to recommend to the county appropriate ways of affording these resources protection.

Areas with natural resource potential are being inventoried by the N. C. State Parks Office. The value of these areas must be assessed in order for their management to be accomplished. County residents have listed the abundance of outdoor recreation activities as one of the primary attractions of the county. A County Parks department, established to study the historic and natural resources, could help to set priorities for recreational development of these areas as parklands for both county residents and the increasing number of tourists now visiting the area. Where lack of public access to such areas is deemed the limiting factor to their utilization, the N. C. Department of Transportation can be petitioned to include the upgrading of access roads in future highway allocations.

### Projected Population Growth

In order to plan effectively for community service facilities, the number of persons expected to be residents of the county and the number of those expected to need different kinds of services in the future must be estimated. Population projections for Pender County have been developed by various State and Federal agencies charged with forecasting population and economic trends. Numerous sophisticated mathematical models have been developed for making such forecasts. But the final analysis, including the choice of which forecasting method to employ, depends largely on whether or not historic trends are expected to continue.

Between 1930 and 1960, Pender County's population increased. But those increases occurred at successively decreasing rates and in 1970 the county's population showed its first actual decline. Historically, therefore, the trend is decline and projections for the future based on the 1960-1970 rate of decline show a population in the year 2000 as low as 16,500. Other projections made for the county are based on a change in trend. In particular, the outmigration which caused the 1960-1970 decline is predicted to end, replaced by eventual immigration due to suburban-spillover from increased industrialization in neighboring counties. The "change in trend" projections predict populations as high as 20,600 in 2000. Table 2-1 lists four kinds of projections and the populations associated with them.

None of the four projection methods listed above takes into account the people of Pender County and the role they can play in determining their own future. In order to assess what kind of growth

Table 2-1. Population Projections.

Source	Method	1980	1985	1990	2000
U. S. Department of Commerce, Bureau of Economic Analysis	Ober "E"	18,700	19,300	19,900	20,300
N. C. Department of Administration, Office of State Planning	Cohort Survival	19,000	19,550	20,100	20,600
N. C. Department of Natural and Economic Resources, Division of Community Assis- tance	1973 Ad- justed Trend  Arith- metic	17,900  18,012	17,650  17,944	17,400  17,875	16,500  17,738

and level of population the people of the county prefer, three alternative growth concepts were developed. The details of the concepts, population levels and descriptive land use sketch maps are shown as parts of Exhibit A-1 in Appendix A. Briefly, concept "A" assumes active discouragement of industrial growth, with the county continuing to function as a bedroom community; this concept also assumes virtual preservation of undeveloped agricultural, forest and barrier island lands. The population projected to accompany such a "no growth" policy in 1975 (derived principally from an average of the Ober "E" and cohort survival projection methods) is 21,065. Concept "B" assumes management of major natural resources areas, and moderate growth of resource based industry, producing an in-county employment base for county residents. The population projected to accompany alternative "B" coincides with that population projected by the Cape Fear Council of Governments (1973) of about 24,310 people in 1995. Concept "C" assumes major industrial development, significant population increases in the beach area, and protection of only tidal marshes and estuarine waters. The population projected for alternative "C" was taken from the Coastal Plains Regional Commission's "Deepwater Terminal Study" (Nathan Associates and Coastal Zone Resources Corporation 1975) in which, as a result of large scale industrialization, a population of 38,085 was predicted to occur in 1995.

In public meetings (see Appendix A) the people of the county voted to work towards growth concept "B". The realization of such a choice will require active involvement of Pender County residents, as the 25,000 population exceeds projections based on either historic trends

or growth merely from suburban spillover. The first step toward the realization of that goal -- a self-sufficient, stable economy with productive management of natural and recreational resources -- has been taken; the residents of the county voted for establishment of an Industrial Commission. The next step involves the establishment of policies, of specific objectives and standards, to guide future development in the county toward the achievement of its goals.

OBJECTIVES AND STANDARDS FOR PENDER COUNTY

ADOPTED MARCH 10, 1976

The land use policy goal of Pender County government will be to encourage employment and other conditions to achieve and support a population of 25,000 by 1995.

Objective: Pender County government will encourage new population growth in areas within or immediately adjacent to existing communities in order to facilitate improvement of services provided to County residents at lowest unit cost.

Standards: 1. The provision and maintenance of necessary public water supplies, sewage disposal facilities and paved streets will be the responsibility of municipalities. Allocations to municipalities for other services will be in the form of revenue sharing based on population needs.

2. Plans for the future distribution of county-wide service facilities for education, health care, and police protection will be based primarily on the needs of existing centers of population.

Objective: Pender County government will encourage preservation of prime agricultural land for agricultural production, at the discretion of the owner.

Standards: 1. That land presently (in 1975) in agricultural crop production will be considered the county's prime agricultural land.

2. Policies will be established for county property valuation assessment to alleviate tax pressure to change the use made of agricultural land.
3. County tax policy, to the degree authorized by statute, will be designed to penalize the use of agricultural land as a tax shelter by speculators.

Objective: Pender County government will encourage the expansion of the county employment and property tax bases by seeking those industries that will maximize employment of county residents and increase per capita income without causing excessive public services costs or degradation of the natural environment.

- Standards:
1. Principal emphasis will be placed on locating or expanding industries that will utilize Pender County natural and human resources.
  2. The County may encourage the location of industry by offering financial assistance for the development of industrial sites.
  3. Potential industrial or commercial installations of 60,000 square feet or larger will require an environmental impact assessment at the same level of detail specified for major state actions by the North Carolina Environmental Policy Act.

Objective: Pender County government will encourage the protection of riverine swamp forests and attendant rivers, creeks, and streams.

- Standards:
1. Drainage programs in swamp forests will be permitted only to the minimum degree necessary to maintain sufficient drainage to alleviate flood damage.
  2. The county soil erosion control ordinance will be strictly enforced to prevent further blocking of drainage from accelerated siltation.
  3. Adherence to high standards for channel improvement and timber harvesting practices will be encouraged to prevent damage to indigenous fish and wildlife species.
  4. Recreational use of the rivers, creeks, and streams will be encouraged through county investment in access facilities.

Objective: Pender County government will minimize public cost of extension of municipal services and harm to the environment by requiring developers to provide initial road and necessary water and sewer services to major subdivisions.

- Standards:
1. A major subdivision is one whose ultimate development will be ten acres or larger and involve 40 or more dwelling units, whichever is smaller.



2. The necessity for public water supplies and sewage disposal facilities will be determined by site evaluation based on relevant North Carolina Division of Environmental Management and Health Services regulations and guidelines.
3. Construction will be governed by enforcement of at least the minimum standards of the North Carolina Building, Electrical, and Plumbing Codes.
4. Major subdivisions will be developed only after submission and approval of plans for the subdivision.

Objective: Pender County government will petition the North Carolina Department of Transportation to upgrade the internal road system of the county to facilitate access from one part of the county to another and to provide heavy duty road links for farm, forestry, and industrial product movement.

Standard: Pender County government will make an assessment of its internal transportation needs and recommend specific projects necessary to meet the above objective.

Objective: Pender County government will encourage utilization of estuaries and tidal marshes which will not alter the natural function of such resources. Such utilization will include but not be limited to the maintenance of channels.

- Standards: 1. Programs will be undertaken to maximize the circulation of tidal waters in the channels of the estuaries and within the marshes where such circulation will result in increased contribution of detritus.
2. Provision will be made to encourage the creation of public access points and the maintenance of navigable channels to these access points for the use of the boating public.

Objective: In areas designated Areas of Environmental Concern or otherwise deemed hazardous or fragile, Pender County government will permit only those kinds of development appropriate for each area.

- Standards: 1. Those kinds of development appropriate for Areas of Environmental Concern are specified in Section III of the Pender County Land Use Plan.
2. Development in USGS designated Flood Prone Areas will follow the Federal Insurance Administration Criteria for Land Management and Use.

Objective: Pender County government will encourage the development of the undeveloped barrier islands for the purpose of public recreation only.

- Standards: 1. The use of public funds for creating access to or promoting development of the undeveloped barrier islands for private purposes will be discouraged.

2. Future development of any of the county's barrier islands will adhere to the standards for development described in Section III of the Pender County Land Use Plan.

Objective: Pender County government will encourage the development of its historic resources as historic recreation areas for public use and enjoyment.

Objective: In order to promote more productive land use in the County and to maintain high yields of forest products in the future, Pender County government will encourage reforestation of land after timber harvesting when that land has not been cleared for other purposes.

Standard: Land owners are encouraged to use the services available in the County from the N. C. Forest Service and private contractors.

SECTION III

AREAS OF ENVIRONMENTAL CONCERN

## INTRODUCTION

Section I of the Land Use Plan describes areas of Pender County in which, because of the physical condition of the land or water, particular kinds of development would be either especially costly or likely to cause undesirable consequences. Some of these areas, such as pocosins, steep slopes, or excessively drained sterile sands, constrain development primarily because of the high costs involved in adapting the land for use. In most such areas, intensive development, as for urban, transportation or industrial use, would not necessarily endanger the inherent value of the resource, but would require excessive public or private expenditures for construction, maintaining access, delivering services, disposing of waste products, or assuring adequate drainage.

In other areas, however, the undesirable consequences that could result from uncontrolled or inappropriate development are not limited to monetary costs. In particularly valuable or fragile areas, misuse of the land or water can cause degradation of a site's biological, visual, economic, or historic resource value. In particularly hazardous areas, poorly located, designed, or constructed development can increase the risk of property loss or endanger the health and safety of people using it.

The Pender County Objectives and Standards cite the land use policies which will be used to guide the location and quality of development in the future in order to protect and manage the county's resources and reduce service costs to county and municipal governments. Private citizens are encouraged to solicit the professional advice offered by

county, state, and federal land management agencies on methods of reducing private costs of land use and achieving maximum long-term productivity. But for the particularly fragile and hazardous areas of the county, stricter control of land use activities is necessary in order to assure that development proceeds in a manner consistent with the capability of the land and water to sustain it. In these areas, designated Areas of Environmental Concern, the county is establishing specific standards for use and development of each area category.

Ultimately, as required by the 1974 N. C. Coastal Area Management Act, the N. C. Coastal Resources Commission (CRC) will designate Areas of Environmental Concern throughout the coastal counties and will designate a permit letting authority to regulate land use within these areas. The following categories and standards are to serve both as guidelines for county policy implementation and as recommendations to the CRC for consideration as State Areas of Environmental Concern.

#### The Estuarine System

The estuarine waters, marshes and mudflats, as defined by G. S. 113-229 and G. S. 113-230, extending the entire length of the county's coast, are of primary importance to the county and the North Carolina coastal area because of their economic, scenic and recreational resource value. The tidal marshes cover less than 4 percent of the total county land area; but with the surrounding estuarine waters, they constitute the most biologically productive area of the county, serving as the primary food source for numerous fish and shellfish species. As a

scenic resource, the county's marshes are unsurpassed, supporting a diversity of waterfowl and subtle vegetation patterns, characteristic of the coastal area. The waterways function as transportation corridors for commercial and sport boating activities and provide for hunting and fishing of a variety of wildlife.

The authority for regulating the use and modification of the estuarine resources has, for a number of years, rested with state and federal permit letting agencies. But until recently, the degree of regulation exercised was slight and the criteria for permit letting did not include consideration of the ecological balance of the estuarine system. Approvals for marshland dredging and filling were often as not a mere formality and sometimes granted after the fact. The increasing awareness of the damage caused by these activities, however, has resulted in much stricter review now of permit applications.

The people of Pender County recognize the importance of the estuarine system and accept the regulation of its use and development as a necessity. Many in the immediate coastal area, however, are now being denied permits to maintain existing access channels. Siltation in both natural and artificial channels has severely limited access from the mainland out into the AIWW, and as a result, limits the use of the recreational resources most people moved to the area to enjoy. For this reason, the county will work with state and federal authorities in managing and, where necessary, preserving the natural state of the estuarine system, but will seek to have established and maintained sufficient navigational channels to allow reasonable use and enjoyment of its water resources, with a minimum of damage to the estuarine system.

The only kinds of new development that can be justified in the estuary are those that require water access and cannot function anywhere else. Piers, docks and marinas, for instance, connecting water-oriented with upland activities, may be considered appropriate if their need in the area can be demonstrated and their specific location and design can be shown to be the most suitable alternative. The county recognizes, however, that while a pier or dock itself does not necessarily cause degradation of the productivity of the estuary, the activities involved in constructing it may. For that reason, the highest reasonable standards of construction will be required for any construction in the area.

Within the estuarine area in the county are islands of various sizes and origins which, though not marshland or estuarine waters in the strict sense, are a valuable part of the estuarine system. The islands contribute particularly to the scenic value of the estuary by adding topographic relief and plant diversity which provide habitat for a variety of wildlife species. Some of them are sufficiently large and stable to accommodate some degree of development without endangering the surrounding estuarine resources. But the islands are properly a part of the estuarine system, included within the areas mapped as coastal wetlands; they are, therefore, designated as Areas of Environmental Concern, and the development of any of them will be reviewed on a case-by-case basis.

#### The Beach-Foredune System

The Atlantic shoreline of the Pender County outer banks is characterized by wide and sandy beaches, backed by a moderately high foredune. The beaches are the primary attraction of the outer banks for the



residents and thousands of vacationers who visit in the summer. The foredunes are a valuable scenic attraction and a buffer to the erosive effects of storm induced wind and waves. The dynamic nature of the beach-foredune complex, however, precludes safe structural development on it since that development, and the construction activities involved, endanger both the scenic and protective value of the resource and the roads and buildings situated inland.

Because, however, of the recreational use of the beaches and the necessity for adequate access to them, allowances will be made for the provision of structural accessways across the dune provided that utmost care is exercised in their location and construction so as to prevent damage to the dune and the vegetation growing on it. Allowances will also be made for the erection of safety facilities, such as lifeguard chairs, and for necessarily water-oriented recreational structures such as fishing piers.

#### Outer Banks-Hazard Areas

The estuarine system, ocean beaches and sand dunes, though inseparable from the rest of the outer banks, have been addressed separately because of their particularly fragile nature and high resource value. But the outer banks as a whole is an area of environmental concern because of the importance of protecting the health, safety and rights of the people who live, visit and own property there.

The North Carolina outer banks, as a marketable piece of real estate, is the most valuable area of the coast, sought after for second homes, residences and vacation sites and for business enterprises to support these uses. But the outer banks as a geologic feature is a dynamic, perhaps transient, land form. The same forces of wind,

water and time which caused the creation of the banks' various features constantly modify these features both in location and extent. Problems are encountered when the man-made structures developed to accommodate their use and enjoyment are built to be static and permanent despite their location in an ever changing environment.

#### Inlet Lands and Excessive Erosion Areas

The only realistic compromise between expensive, fruitless combat with the forces of nature and complete surrender to their supremacy is development of only the more stable parts of the whole in a manner which those parts can accommodate. For that reason, any new development in the particularly hazardous areas of the outer banks will be strongly discouraged and, unless demonstrated to be directly in the public interest, will not be supported by public funds. In particular, coastal inlet lands and oceanfront property with a high probability of incurring excessive erosion are unsuitable locations for the placement of structures used for housing, institutional purposes, transportation or commerce, and are considered of too high a risk to warrant public investments into roads, sewer and water lines and other such facilities.

It will be a municipal responsibility to make adequate provision to warn prospective buyers of property in hazard areas located within municipal jurisdictions of the risks involved and of the municipal policy of service provision. In unincorporated parts of the County, the County will exercise its responsibility by requiring written acknowledgment from developers before the approval of subdivisions, and from individuals before registering deeds, of the location of property within a hazard

area and of the County policy of public expenditures in such areas. All construction in these hazard areas will be required to meet at least the minimum standards of the North Carolina Building Code and conform to the standards of the Federal Insurance Administration for coastal high hazard areas.

#### Coastal Flood Plains

Virtually all of the county's outer banks and some of the adjacent mainland are within a U.S.G.S. designated Flood Prone Area, susceptible to inundation during severe storms. In order to reduce both flood damage and the cost of flood insurance, all construction in coastal flood prone areas must be required to meet the Federal Insurance Administration standards for coastal high hazard areas.

#### Historic and Natural Resource Areas

Those places in Pender County of a historic nature that have been/may be inventoried by the County are/will be areas of environmental concern because their value to the county and state is non-renewable and damage to them could be irreversible. Swamp forests in the County are included as Areas of Environmental Concern because their scenic and natural resource value renders them high quality hardwood timberland and a potential major recreation resource. The county encourages protection and management of these resources and will seek in the future to incorporate some swamp forest and historic areas into a county park and recreation program.

#### Public Trust Areas

Pender County supports the traditional public rights of access to and use of lands and waters designated Public Trust Areas for purposes including navigation, fishing and recreation. The county both

supports and encourages the development of commercial recreation facilities in the county, especially those that promote the use and enjoyment of the waterways. But to the degree authorized by statute, the county will prohibit any development which unduly restricts public access to or use of Public Trust Areas.

It is obvious from the outset that protection of specific Areas of Environmental Concern in the county cannot be accomplished without some consideration of land uses in areas immediately adjacent. An historic building itself, for instance, can be restored and protected; but if an industrial complex is situated immediately around it with no effective buffer, the esthetic value of the building can suffer. A swamp forest stream can be cleaned and managed as a recreational waterway; but if land use activities upstream result in accelerated erosion, siltation in boating channels can hinder their recreational use. The estuarine system along the Pender County coast is only part of the system extending northward into Onslow County and southward into New Hanover County. Pender County's regulatory authority to prevent pollution and siltation can be extended only throughout its political jurisdiction. Circulation patterns in the water that transports silt and pollution, however, function without regard to political boundaries.

In order to facilitate better protection and management of Areas of Environmental Concern and other county resources, land use regulations and policies established in the future will take into account the impact of land use on adjacent valuable or fragile areas. Furthermore, to whatever extent possible, the county will require compliance with county policies not only from all private individuals, but also from state and federal agencies involved in land modification activities in the county.

Plate 2 delineates the approximate location of various categories of county designated Areas of Environmental Concern.<sup>a</sup> It must be emphasized, however, that these delineations are not sufficient for most regulatory purposes because of the necessarily small map scale and because, in most cases, on-site evaluation will be necessary in order to determine the precise boundary of a particular category of land or water. But the County encourages anyone involved in or contemplating a change in land use in the county to use this map as a guideline for interpreting the possible effect of county and state policy on particular parcels of land.

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<sup>a</sup>Several other categories have been proposed for consideration by the CRC but because of insufficient data have not been discussed at this time.

SECTION IV

FUTURE LAND USE

## THE DEMAND FOR LAND

The 1975 Pender County population is estimated to be 18,200. The growth goal for the future calls for a population of 25,000 by 1995, an increase of 6,800 people or 37 percent. If the population were to increase at constant rate over the 20-year period, it could be expected to reach 21,600 in 1985. Since, however, the increase depends heavily on social and economic programs only recently initiated, a higher rate of growth is expected between 1985 and 1995 than between 1975 and 1985. The population projected for 1985 is 20,800.

Historically in Pender County, the population has been widely distributed, with less than 15 percent of County residents living in incorporated towns, the remainder in unincorporated communities or in entirely rural areas. More recent development has resulted in some new areas of population concentration, particularly along U. S. 117 near Rocky Point and east of U. S. 17 near Hampstead. Development in both of these locations is far removed from Pender County municipalities, radiating rather from built-up areas in New Hanover County.

### Factors Influencing Growth

If current patterns were taken to be the only indicators of the future, almost all new development would be expected to occur in the southern and eastern parts of the county. But residential development often radiates from employment bases, and Pender County is now working to increase in-county employment. The amount of residential growth and commercial support facilities that will occur in other parts of the county will depend to a great extent on the amount of industry and other sources of employment that will be located there.

There are two areas of the county that would seem at this point best suited to larger scale industry. A complete evaluation of the areas has not yet been made either from an economic or environmental standpoint. But because of their proximity to highway networks, railroads, population centers, and possible barge facilities on the Northeast Cape Fear River, and their location on soils generally suited to industrial needs, the following two areas are currently considered primary target areas for investment into industrial location: 1) the belt along U. S. 421 in the vicinity of Richards, and 2) the area immediately northeast of the junction of U. S. 117 and the Northeast Cape Fear River.

The area currently most suitable for the location of commerce and smaller scale industry is in and around Burgaw; highways, the railroad, municipal services, and institutional facilities that can serve commercial needs are already established and ample residential land is available in Burgaw to accommodate future growth.

The outdoor recreational amenities along the coast and the availability of residential lots in subdivisions will continue to attract new population to the outer banks and the area between U. S. 17 and the AIWW. On the developed outer banks, municipal services, such as sewer and water and paved streets, are being planned to accommodate the higher population density now located there and expected to occur in the future. The lack of a municipality to provide public services between U. S. 17 and the AIWW will restrict population density there to that which can be safely accommodated with on-site water supplies and private sewage disposal systems. Residents of the area may in the future need to incorporate in order to allow for higher population densities and provide for increased municipal service needs.



#### Population Distribution

Approximately 66 percent of the projected increase in population by 1985 can be expected to locate in three of the county's townships -- Burgaw, Topsail and Rocky Point. Burgaw Township in 1970 housed 24 percent of the county's population (Cape Fear Council of Governments 1973) and is expected to receive about 22 percent of the increase in the next decade. Topsail Township accounted for only 16 percent of county residents in 1970; but because of the growth in the area between 1970 and 1975, and stated desires for continued moderate growth, the Township is expected to receive 32 percent of the predicted increase. Rocky Point Township, with no municipalities or associated services, accounted for only 9 percent of the county's 1970 population. But because of more recent growth trends and the possibility of industrial location in its vicinity, the Township is expected to receive 12 percent of the population increase.

The remaining 33 percent of the projected population increase is expected to be distributed rather evenly in the county with highest concentrations in Union, Long Creek and Grady Townships.

In order to facilitate improvement of services provided to county residents at lowest unit cost, Pender County service provision, property tax and land use policies will be designed to encourage new population growth in areas within or immediately adjacent to existing communities. In order to promote protection and management of the county's economic, natural, scenic and historic resources, development in valuable resource areas will be carefully reviewed before receiving county approval or support.

#### Land Classification System

The North Carolina Land Policy Council has established a land classification system for localities to use to identify the most appropriate

general uses of various kinds of land. The Land Classification Map (LCM) produced from the classification system allows a local government to make a statement to state and federal authorities, as well as local residents, on where and to what density growth is desired. The county LCM will serve as a tool for informing the public of basic county policies and of areas for which further land use regulations will soon be established.

The land classification system was established for state-wide use and, as such, its categories are perhaps more applicable to places more urbanized than Pender County. The population density needed to warrant the "Developed" or "Transitional" categories, for instance, exceeds the highest densities found in Pender County. Strict application of the defined criteria for each category, therefore, is impossible; but the system, when adapted to Pender's needs, can be used for its intended purpose.

The land classification system includes the following five categories of land:

1. Developed -- Lands where existing population density is moderate to high and where there is a variety of land uses which have the necessary public services.

The Town of Burgaw is the only Developed place in the County. The Town has municipal water and sewer systems which are being upgraded and expanded to serve the whole jurisdiction.<sup>a</sup> The Town has established a policy of promoting moderate growth within the jurisdiction; municipal service extension outside the Town limits is not anticipated in the near future.

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<sup>a</sup>The water system is currently operating at only 46 percent of its capacity; the sewer system, however, is at 100 percent capacity.

2. Transitional -- Lands where local government plans to accommodate moderate to high density development during the following ten-year period and where necessary public services will be provided to accommodate that growth.

There are two places in Pender County in the Transitional Class -- the Towns of Topsail Beach and Surf City. Each of these towns is experiencing moderate to high growth of year-round population, as well as rapid growth of seasonal (summer vacation) population. The two municipalities currently have public water systems; the adequacy of the public water supply for projected future needs is currently being studied with the intention of upgrading the systems if necessary. The Towns together with Onslow County are attempting to establish an island-wide sewer system.

3. Community -- Lands where low density development is grouped in existing settlements or will occur in such settlements during the following ten-year period and which will not require extensive public services now or in the future.

There are 9 places in Pender County designated Community -- Rocky Point, Watha, Willard, Penderlea, Long Creek, Currie, Atkinson, Maple Hill,

and Hampstead. Atkinson and Watha are incorporated towns but do not plan to establish municipal water or sewer facilities in the future. Development in any of these communities should remain at low enough densities that no additional municipal services will be needed.

4. Rural -- Lands whose highest use is for agriculture, forestry, mining, water supply, etc., based on their natural resource potential. Also, lands for future needs not currently recognized.

The bulk of Pender County is in agricultural or forest production and is classified Rural. Land currently (1975) in agricultural crop production (as delineated on the Existing Land Use Map) is designated the County's prime agricultural land for tax evaluation purposes. Land development or modification in any rural areas should be aimed at the better management and production of natural resources. The subdivision of rural land into non-resource oriented uses will be generally discouraged and subject to subdivision regulations in the future.

5. Conservation -- Fragile, hazardous, and other lands necessary to maintain a healthy natural environment and necessary to provide for the public health, safety, and welfare.

The Conservation Class includes among others those areas the County has designated Areas of Environmental Concern. The Conservation land should

be maintained essentially in its natural state.

#### Growth Distribution to Land Classes

Approximately 13 percent of the projected population increase is allocated to Developed land, in short, to the Town of Burgaw. Twenty percent of the increase is allocated to the Transitional Class, 51 percent to Community, and 16 percent to Rural. Table 4-1 gives a further breakdown of expected population distribution in 1985.<sup>a</sup> The figures in Table 4-1 were derived by 1) comparing current population distributions with factors likely to influence future growth, 2) assuming that county land use and economic policies will be effective in promoting growth goals, and 3) evaluating, where available, the growth goals of individual localities.<sup>b</sup> Allocating certain portions of the population increase to specific areas does not imply a policy determination that a specific amount of growth should take place in each location. Rather, the estimations of population growth in specific areas serve as a tool for predicting future housing, transportation, educational, health service needs and the like, and the demand for commercial facilities to support land use in each location.

#### Residential Land

Each of the Developed and Transitional areas contains enough subdivisions only partially filled up, small by-passed tracts of land and single

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<sup>a</sup>Population figures here for Surf City and Topsail Beach as for the rest of the county reflect the growth of year-round population only. Seasonal population growth in the beach areas and the accommodation of that growth are addressed in each municipal plan.

<sup>b</sup>Local population projections for Atkinson and Burgaw were based on historic trends and are somewhat lower than these projections based on growth goals.

Table 4-1. Population Increase Distribution to Land Classes by Place -- 1985.

Class	Total Number Persons	Location	Number Persons
Developed	335 (13%)	Town of Burgaw	335
Transitional	525 (20%)	1. Surf City	296
		2. Topsail Beach	229
Community	1334 (51%)	1. Atkinson	85
		2. Currie	164
		3. Hampstead	266
		4. Long Creek	164
		5. Maple Hill	47
		6. Penderlea	109
		7. Rocky Point	281
		8. Watha	109
		9. Willard	109
Rural	406 (16%)	Townships	
		1. Burgaw	226
		2. Caswell	35
		3. Grady	18
		4. Holly	5
		5. Long Creek	18
		6. Rocky Point	31
		7. Topsail	36
		8. Union	37

vacant lots to accommodate expected population increases within existing jurisdictions. Residential land needs in each of the municipalities are described as follows:<sup>a</sup>

Burgaw.

335 people @3.1 persons per unit = 108 new units

108 units @3.6 units per acre = 30 acres. There are 845 undeveloped acres in the town.

Surf City

296 people @3.7 persons per unit = 80 units

80 units @5.7 units per acre = 14 acres. There are 125 undeveloped residential acres in the town.

Topsail Beach

229 people @3.1 persons per unit = 74 units

74 units @5 units per acre = 15 acres. There are 171 undeveloped residential acres in the Town.

Each municipality has stated a desire to accommodate population increases within jurisdictional boundaries and in each municipal plan the ability to accommodate future populations has been demonstrated. In most cases, annexation of additional land or extension of services beyond municipal boundaries would burden existing service facilities. The Town of Surf City, however, is considering the feasibility of annexing additional land for commercial purposes.

The criteria for the community class call for a gross population density of 1 person per acre. Hence, about 1330 acres of land would be needed to accommodate the projected increase of 1334 persons. But the unincorporated communities in the county have neither defined boundaries nor population estimates. For that reason it is impossible to determine

<sup>a</sup>Occupancy rates (persons per unit) and dwelling unit density (units per acre) are derived from the Land Use Plan of each jurisdiction.

current occupancy rates or an average dwelling unit density from which to derive residential land needs. It can be assumed, however, that in the communities, as in the municipalities, there is a sufficient amount of land available within existing built-up areas to accommodate future populations without extensive land subdivision or encroachment on valuable resource areas. It must be recognized, however, that many of the communities in inland Pender County are located on what has been defined as the county's prime agricultural land. The county will encourage careful consideration of the productive potential of land even in areas designated for residential, commercial and institutional purposes.

#### Commercial and Institutional Land

The Land Classification system refers specifically to the location and density of future population. It follows, however, that commercial facilities such as shopping, entertainment and professional services and public institutions, such as schools, town halls, health clinics and fire stations, be centered in close proximity to the populations that they serve, and that their distribution be proportional to the populations in various parts of the county. For that reason, County regulations governing land subdivision and development will be designed to promote appropriate location and construction of commercial and public facilities as well as residential land use. In particular, land use regulations will encourage the revitalization of business districts in larger communities and concentrated rather than strip development throughout the county.

#### Industrial Land

According to the Cape Fear Council of Governments (1973) Pender County will need approximately 125 acres of industrial land in 1985.<sup>a</sup>

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<sup>a</sup>Industrial land needs were estimated to be 35 acres for the period 1970-1980 and 125 acres for 1980-1990.



Industrial land needs were based on projected increases in manufacturing employment, the average number of manufacturing employees per gross acre, and current industrial land utilization in the region. But 125 acres is an estimate of only the amount of land needed for purposes directly related to industrial production; the amount of land different industries would require for water supply, investment or other purposes varies.

The Pender County Board of Commissioners recently appointed an Economic Development Commission to promote economic development, including industrial location, in the county. Furthermore, in February 1975, the N. C. DNER designated Pender a Selected Target Area of Economic Opportunity. This designation is part of a statewide economic development planning process to coordinate state and local efforts in promoting industrial location. The goals of this coordinated planning process include demonstrating that local interests, when armed with sufficient data and information regarding their economic, social, environmental and political constraints and potentials, can set realistic objectives for attracting industrial prospects into their area.

As previously noted, two areas of the county are considered at this time primary target areas for investment into industrial location. But because the economic development planning process has just been initiated, neither the size of these two sites nor the amount of public funds desired by the people to be invested into these or other sites has been determined. For this reason, no industrial sites have been delineated on the LCM at this time. The Economic Development Commission's designating industrial sites in the Rural land class (which by definition includes lands for future needs not currently recognized) in the future should not be considered a violation

of county policy, nor should the omission of these sites on the LCM now be construed as a policy determination that there be no industrial land use in the county.

#### Recreational Land

The N. C. State Comprehensive Outdoor Recreation Program (SCORP) was developed as a management tool to aid local governments in assessing recreational land needs for the purpose of determining public investment alternatives. SCORP recommends considering 10 acres of publicly owned recreational land per 1000 people as a standard for determining needs. Outdoor recreation in Pender County is strongly resource oriented. The extensive forestlands and miles of beaches and waterways provide ample acreage for recreational activity in the county, in particular for hunting and fishing. But the large publicly owned outdoor recreation areas such as Angola Bay and Holly Shelter are located only in inland areas of the county, and serve primarily only hunting and fishing enthusiasts at this time. The principal recreation needs in inland Pender County are for better access, facilities and supervision in existing public or private land used for recreation, rather than for additional recreational land.

Along the county's coast, however, there are no publicly owned or operated recreational lands. And, because of the increased intensity of private residential land use in this part of the county, public use of the coastal land and water is becoming more restricted. For instance, the only place on the mainland adjacent to the AIWW still available to the public for boat launching is at Watts Landing. What is more, despite the almost universal appeal of beaches, there are no publicly owned beach areas in the county, either in incorporated or unincorporated areas.

The county has initiated planning for a county recreation program; a Recreation Committee has been appointed to inventory specific areas of the county with the highest potential for more intensive recreational development. In particular, the county is investigating at this time the feasibility of promoting the use of its waterways, both inland and estuarine, by increasing the number of boat launching ramps and improving navigability of channels. The feasibility of public recreational development of a now undeveloped barrier island in the county is also being assessed.

## OUTSIDE PRESSURE FOR CHANGE

The kind of economic development sought in Pender County will not only result in an increase in population, but should also support that population in terms of employment and public service provision. The kinds of industry sought will not merely increase the county's property tax base or its prestige in the eyes of neighboring counties, but will, more importantly, increase the income of Pender County residents. It is neither economic progress for the sake of growth nor growth for the sake of progress that is encouraged. On the contrary, the county is promoting gradual economic expansion so as to accommodate resultant growth within the existing social and institutional framework.

But sometimes the forces which initiate change within a county are applied from the outside. The alignment of major transportation corridors, for instance, can have a tremendous impact on land use patterns in an area and influence the location of commercial, industrial and residential growth. But decisions on the location or relocation of a major highway are usually made by state or federal governments. Likewise, the location of major industry in an area is a decision traditionally made by the private investment sector working with the state. The people most strongly impacted by such decisions -- local officials, property owners, businessmen and taxpayers -- have often been the last to know what has been decided on their behalf.

An important part of this land use planning process is the opportunity given county residents to become involved and make their opinions known to County officials. An equally important part of the process is the opportunity the County must take in making its policies

and goals known to and actively taken into consideration by state and federal agencies involved in land use activities in Pender County.

The County has initiated coordination of its land use planning activities with representatives of state agencies, in particular the Departments of Transportation and Natural and Economic Resources, by requesting careful consideration of its land use plan and policies in decisions that will impact the people and resources of Pender County. Granted, the County Plan and its policies must be compatible with regional and statewide plans. If specific provisions should be found to be in conflict with regional or statewide interests, some compromises may be required. But the intention of the 1974 Coastal Area Management Act was to allow local governments to plan their own futures. In order for the planning process to achieve its legislative goals, it must be utilized both within and outside the planning jurisdiction.

**SECTION V**

**PLAN ADOPTION AND IMPLEMENTATION**

#### PLAN ADOPTION

As authorized by the Board of County Commissioners, the Pender County Land Use Plan was prepared by the County Planning Board with technical assistance provided by Coastal Zone Resources Corporation and the Cape Fear Council of Governments. Current economic, social and environmental conditions in the County were assessed; the major land use issues were addressed; and alternative policy measures which could be used to deter potential problems while achieving goals were studied.

Throughout the CAMA planning process, public opinion was solicited, obtained and evaluated and used as a primary determinant of future objectives, standards and policies. In addition, representatives of major land management agencies in the County, such as the N. C. Forest Service, the Agricultural Extension Service and the Soil Conservation Service, gave valuable assistance in evaluating current land management problems and offering alternative policy measures for the future. The Rural Development Panel, representing various professions and locations of the county, served as advisors to the Planning Board, allowing for coordination of the county's CAMA and Community Development "Block Grant" planning activities.

Concurrently with the County planning program, four municipalities in the County -- Atkinson, Burgaw, Topsail Beach, and Surf City -- each prepared a Land Use Plan for its jurisdiction. The preparation of individual municipal plans allowed for an in-depth study of conditions and problems specific to each jurisdiction to complement the more general application of the County Plan to conditions and problems of a county-wide nature. Since the five jurisdictions represent five virtually separate political authorities, the objectives, standards and policies of each were established within the proper statutory bounds of the respective authorities.

In order to ensure mutual compatibility among the municipal and county plans, activities of the respective planning groups were closely coordinated. A regular part of the agenda for planning meetings included reports of planning progress in other jurisdictions. On May 20, 1975, a meeting of elected officials and Planning Board members from each planning jurisdiction was held in Burgaw to discuss mutual problems encountered. On October 30, 1975, a joint county-municipal Planning Board meeting was held in Burgaw in order for each jurisdiction to present to the others planning progress to date. In addition, regular meetings of the planners involved with each plan and representatives of the Cape Fear Council of Governments were held.

On February 1, 1976, the Planning Board submitted its proposed Objectives and Standards to the Board of County Commissioners for review. In this and subsequent meetings (March 1 and March 10, 1976), the Planning Board and elected officials discussed at length the issues involved and their implications for the future of the County. From these review sessions and resultant further studies of alternatives, the proposed Plan and policies for future economic and land development in the County were developed.

In order that the essential elements of the Plan, including its land use policies, objectives and standards, be readily available to all interested persons, a Synopsis of the Plan is being prepared. The Synopsis will include the Land Classification Map and examples of the Existing Land Use and Areas of Environmental Concern delineations, with an explanation of how additional information can be obtained upon request.

The sequence of events yet to come, before final adoption and implementation of the plan, includes:



1. Joint City/County Public Hearing -- On May 10, 1976, a public hearing, in which the Pender County and all municipal plans will be presented and comments on them received, will be held in Burgaw.<sup>a</sup> Comments and suggestions made in the public hearing will be carefully reviewed; necessary changes in the Plans and Synopses will be made before their final adoption.
2. Transmission to the Coastal Resources Commission -- By May 21, 1976, a certified copy of the adopted Plan will be sent to the Coastal Resources Commission for its review and approval.

At least 30 days before the joint public hearing, a copy of the completed Plan will be placed in the County Courthouse for public review and inspection. Notice of the public hearing and of the availability of the Plan for review will be made in newspapers distributed locally.

Following adoption of the Plan and its approval by the Coastal Resources Commission, copies of the full Plan will be available for study in the County Courthouse and in Town Halls. Copies of the Plan will be sent to the major land management agencies in the County and can be obtained by civic groups and other interested parties, at cost, upon written request. The Synopsis will be mailed to all postal boxholders in the county; copies of the Synopsis will be made available to non-resident property owners free of charge upon written request.

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<sup>a</sup> Before the joint hearing, individual hearings will have been held on each the Burgaw, Topsail Beach and Surf City Plans.

## PLAN IMPLEMENTATION

The second phase of the CAMA planning process involves implementation of the Land Use Plan. The County's adoption of its Plan constitutes a formal declaration of land use policies; but many of the standards proposed for meeting objectives require the enactment of new ordinances in order to become effective. Related planning activities, as for a parks and recreation program or housing rehabilitation, are also involved in plan implementation.

The major elements of the implementation phase of the Land Use Planning process in Pender County are summarized as follows:

### Enactment of Ordinances

In order to carry out the County's policy objectives, subdivision regulations will soon be enacted. In particular, provisions will be made in the subdivision regulations for a) protection of Areas of Environmental Concern and management of natural resources, b) adherence to development goals as described in the Land Classification system, c) requiring proper consideration of the carrying capacity of land and water resources as relate to sewage disposal and ground water supplies and d) advising property owners of County policy on service provision in hazard areas.

In order to ensure reasonable standards of construction, the County will adopt building electrical and plumbing codes. These codes will be designed, as well, to meet Federal Insurance Administration standards for hazard areas in order to reduce flood and storm damage and the cost of floor insurance premiums.

In order to secure reasonable evaluation of the potential impacts of large commercial or industrial activity, the County will establish necessary

requirements for Environmental Impact Statements.

#### Coordination of Permit-Letting Authorities

The 1974 Coastal Area Management Act provides for local permit-letting agencies to be established for minor development<sup>a</sup> permits required in Areas of Environmental Concern (AEC's). In order to qualify for AEC permit-letting authority, a local jurisdiction must first declare its intent, then prepare a Local Management Plan acceptable to the Coastal Resources Commission (CRC). The CRC is currently establishing criteria for local implementation and enforcement programs including elements that will be required for approval of a Local Management Plan.

The CRC emphasizes the value of coordinating the activities of various local regulatory authorities, such as building and septic tank inspections, subdivision plat approvals, and sedimentation and erosion control program approvals, with the AEC minor development permit-letting authority. Coordination of as many of these activities as possible will be essential for implementation of the Land Use Plan, as the salary and operating costs for separate permit-letting authorities in the county would put an excessive burden on county financial resources. Such coordination could also simplify the permit-letting process for both the County and the applicant involved. The CRC criteria being developed will also allow for City-County coordinated permit-letting authorities.

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<sup>a</sup>The term "Minor Development" means any development other than a major development. The statutory definition of Major Development is "any development which requires permission, licensing, approval, certification or authorization in any form from the Environmental Management Commission, the Health Services Commission, the State Departments of Natural and Economic Resources or Conservation and Development, the State Department of Administration, the North Carolina Mining Commission, the North Carolina Pesticides Board, or the North Carolina Sedimentation Control Commission; or which occupies a land or water area in excess of 20 acres; or which contemplates drilling for or excavating natural resources on land or under water; or which occupies on a single parcel a structure or structures in excess of a ground area of 60,000 square feet."

Therefore, part of the implementation phase of planning in Pender County will involve development of the aforementioned Local Management Plan.

#### Related Planning Activities

Future CAMA planning will involve coordination with related activities of the Community Development Committee and the Economic Development Commission (EDC).

The Community Development Committee directs itself to assessing the need for upgrading blighted areas of the county under the U. S. Department of Housing and Urban Development (HUD) Community Development Block Grant Program. This program can provide funds for housing rehabilitation, flood prevention, recreation and the like. The county's FY 1976-1977 pre-application to HUD requests funds for various projects including storm drainage and street paving and widening in the Burgaw and Maple Hill areas, and boat launching facilities near Hampstead. Planning Board related activities will include further assessing parks and recreation needs, establishing a process for inventorying historic sites, and evaluating internal transportation needs to recommend to the N. C. Department of Transportation for action.

The EDC directs itself toward promoting economic development in the county, including locating the kinds of industries that would be of value to the County. The EDC has begun studying the policies established in the Land Use Plan, particularly those that relate to the selection and location of industry and the control of resultant residential and commercial growth. As authorized by the Board of County Commissioners, the EDC will be asked to submit to the Planning Board recommended suitable

locations in the county for designation as industrial areas; upon such selection, efforts will be made through zoning or other means to have these areas reserved for industrial location.

Section 208 of the Federal Water Pollution Control Act Amendments of 1972 (PL 92-500), as well as other sections of this law, is designed to achieve water quality which "provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water" by July 1, 1983. Section 208, more specifically, is designed to plan ways to reduce all types of pollution in specially designated areas to the 1983 level and to set up a management agency to guarantee achievement and maintenance of the 1983 water quality level. Areas in North Carolina having complex water quality control problems have been designated by the Governor as priority 208 Planning Areas.

Several parts of Pender County, including the coast where some serious water quality problems have been encountered, were included in the Governor's designations. Inclusion in the 208 Planning program could allow the county -- in particular the beach municipalities -- a means for studying the coastal water quality situation should construction of the Topsail Island sewer system (201 Plan) not be feasible.

#### Periodic Review and Revision of the Plan

In order to make land use planning in Pender County an on-going, effective process, the County has hired a Planning Director to work with the Planning Board. The Board will continue to meet monthly and will, on a quarterly basis, consider any upgrading or revision of the Plan deemed necessary. Annually, the Planning Director will make a report of Planning Board recommendations to the Board of County Commissioners.

SECTION VI

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**APPENDIX**

#### APPENDIX A. PUBLIC PARTICIPATION PROGRAM

The Pender County Planning Board, with the concurrence and support of the Board of County Commissioners, actively sought and utilized public views in preparing the land use plan. The planning process was open to all persons with an interest in Pender County; the Public Participation Program consisted of the following activities:

1) Appointing a Planning Board representing various interests and areas of the county. The Planning Board members are:

DeLeon Fennell, Chairman	Rocky Point	Farmer
Sidney Williams, Vice-Chairman	Surf City	Realtor
Harold Aitken, Secretary	Atkinson	Retired
Leslie Batson	Hampstead	Auctioneer
Clive Doshier	Burgaw	Businessman
Bennie Herring	Burgaw	Farmer
Maxie Lanier	Burgaw	Forester
Joe McGlohon	Willard	Postman
Arthur Wooten	Maple Hill	Farmer-Developer

2) Conducting public information meetings

In an effort to obtain the widest possible input from all Pender County residents, the Planning Board arranged township public information meetings beginning April 10, 1975 in Penderlea for Union and Columbus Townships. The purpose of the meetings was twofold - to explain the CAMA and planning process to county residents and to assess local views on the major land use issues and alternative means

of solving problems. The meetings were held at night in order to be convenient; notices of the meetings were published in the newspapers, posted in local stores and businesses, and distributed by the Planning Board members responsible for each meeting. Despite conscientious efforts by the Planning Board, attendance at the meetings was very low and the Township meeting approach was abandoned.

The Planning Board continued to hold its regularly scheduled monthly meetings open to the public. The Board continually addressed the major issues confronting the county and studied alternative means of obtaining public input. It was realized early that much of the lack of response to calls for widespread input was due to a lack of understanding of the planning process and its effect on all county residents. In order to solve this problem, a 5-part packet (shown as Exhibit A-1) was developed and mailed to all Pender County postal box-holders. The packet included: 1) a letter to county residents from Gordon Jones, Chairman of the Board of County Commissioners and DeLeon Fennell, Chairman of the Planning Board, explaining the importance of land use planning and the role of county residents in formulating the plan; 2) an explanation of the CAMA and the role of the Planning Board, and a review of the work accomplished to date and needed to be done in the future; 3) alternative county sketch maps, with accompanying explanations, designed to help county residents visualize the consequences of some of the choices to be made - particularly choices of population growth; 4) a questionnaire to gain opinions about the future of the county; and 5) an invitation to public meetings to eat supper and discuss the Pender County plan.

Four meetings were held to serve the four major sections of the county. At each meeting a Planning Board member was in charge, and representatives of the County Board of Commissioners, the Cape Fear Council of Governments, and Coastal Zone Resources Corporation were in attendance, available to answer questions and explain the planning process. The three alternative sketch maps were on display and the principle assumptions on which each was based were explained. At the end of each meeting, a vote was taken to determine a consensus of which general level of growth was desired. The votes were as follows:

<u>Place</u>	<u>Date</u>	<u>No. Co. Residents in Attendance</u>	<u>Alternative Concept</u>	<u>Number of Votes</u>
Long Creek	Oct. 18	28	A	2
			B	14
			C	2
Penderlea	Nov. 1	50	A	5
			B	31
			C	4
Atkinson	Nov. 8	35	A	0
			B	16
			C	1
Hampstead	Nov. 15	153	A	12
			B	77
			C	7

In addition to their distribution to all county postal box-holders and their display at the four meetings, the alternative sketch maps were displayed at the Pender County Fair held from September 22 to September 27. A special information booth was constructed for explanation of the planning process and was manned by members of the Pender County Rescue Squad to answer questions.

3) Formulation and distribution of questionnaires and tabulation of responses.

Early in the planning process, the Planning Board formulated questionnaires designed to determine the nature of the major land use issues in the county. The Citizens Questionnaire (See Exhibit A-2) asked for an assessment of the major problems and advantages of the county, general growth goals for the future, and desired means of accomplishing chosen goals. The questionnaire was distributed at the Township meetings. The volume of response to this questionnaire was poor, but the candid answers of those responding were enlightening. (Tabulations of the Citizens Questionnaire are shown as Exhibit A-3). While the number of responses was too small to be construed as a consensus of county opinion, the information gained from them allowed the Planning Board to direct itself to more specific issues in its next attempt.

In September 1975, the Planning Board formulated a new questionnaire asking opinions on those issues which had surfaced as the major issues confronting the county. (The second questionnaire is shown as part of Exhibit A-1). In order to assure its wide distribution, the new questionnaire was included in the information packet mailed to all postal boxholders. A total of 225 questionnaires were returned. The responses were tabulated by Ms Pat Jasper of the Burgaw Civil Defense Office; the tabulations are shown as Exhibit A-4.

4) Utilization of local news media

The recognition of the importance of widespread awareness of planning activities prompted the Planning Board to utilize extensively the local news media. Throughout the planning process, the two county

newspapers, the Pender Post and the Pender Chronicle were given news releases concerning the Board's activities. With the beginning of the second phase of public participation - the formulation of the alternative sketch maps and series of four public meetings - the involvement of news media increased. Coverage by the Pender Post and Pender Chronicle was excellent and included detailed front page announcements of each forthcoming meeting, followed by a summary of events, with pictures, after each meeting was held. Radio stations in Burgaw (WVBS) and Wallace (WLSE) carried public service announcements of each meeting, as did two Wilmington stations, WWIL and WMFD. Wilmington television station WECT carried the public service announcements and televised an interview of DeLeon Fennell of the Planning Board and Mimi Cunningham of the Cape Fear Council of Governments.

**EXHIBIT**

**A-1**

# Pender County

## OFFICE OF COUNTY COMMISSIONERS

BOX 4

Burgaw, North Carolina 28425

GORDON JONES, CHAIRMAN  
CECIL EAKINS, VICE CHAIRMAN  
SIDNEY A. LANIER  
JOHN W. JAMES, JR.  
D B SHACKELFORD

HOWARD HOLLY  
COUNTY FINANCE  
OFFICER AND CLERK  
TO BOARD OF  
COMMISSIONERS

PHONE 259-2636

September 16, 1975

### A Letter to Pender County Residents:

We all regularly see news reports of severe problems, such as congestion and pollution, in other parts of the country brought on by alleged failure of local governments to think ahead. It has been popular to think North Carolinians have breathing time to prepare to meet their needs while avoiding mistakes made elsewhere; "We can wait for tomorrow" has been the prevailing attitude.

But forces beyond the county's and the state's control are causing noticeable changes now and the potential exists for even more rapid change in our lives. The energy crisis has made a deep water port-oil refinery complex a possibility here; the people in the Piedmont urban complex look to our beaches for recreation opportunities; the Wilmington urban area is rapidly spreading into Pender County along U.S. 17 and U.S. 117.

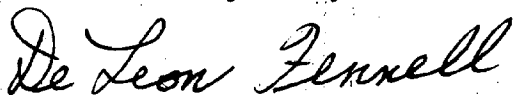
Planning is something all of us do. The N. C. General Assembly has provided money to plan for the future of Pender County. The Board of County Commissioners created a Planning Board to direct the work and appropriated county funds to support the board's activity. A land use plan will be completed by the Planning Board in January; the County Commissioners will hold a public hearing on the recommended plan before acting upon it.

If your Commissioners and Planning Board are to act in a way that reflects your desires, it is very important that you fully and candidly tell us what you want.

The brochures enclosed describe what all North Carolinians are trying to accomplish in the coastal area of our state and the work the Planning Board is doing right here. We strongly urge you to think seriously about the questions asked, complete the questionnaire, and mail it to us. Please give us the benefit of your thoughts and experience.

A series of public meetings for voting age residents will be held in October and November (see enclosed invitation). The three alternative land use plans, developed by the Planning Board (enclosed), will be explained and you will be asked to give an opinion as to which one you prefer.

Thank you very much.



De Leon Fennell, Chairman  
Pender County Planning Board



Gordon Jones, Chairman  
Board of County Commissioners

Enclosures



INVITATION  
TO PUBLIC MEETINGS  
TO  
EAT SUPPER AND DISCUSS PLANS  
FOR  
THE FUTURE OF PENDER COUNTY

The Pender County Planning Board has scheduled four public meetings so you can have your questions answered and express your opinions on the future of Pender County. You are invited to attend the meetings for your township.

Free bar-b-que chicken dinners will be served to those voting age Pender County residents who attend.

After the meal, a program will be presented describing the three alternative land use plans developed by the Planning Board. Your comments and opinions will be needed to assist the Planning Board in its selection of a plan for Pender's future.

<u>Meeting Date</u>	<u>Place</u>	<u>Townships</u>	<u>Board Members In Charge</u>
October 18	Long Creek Long Creek-Grady School 5:00 p.m. dinner 6:00 p.m. meeting	Long Creek Burgaw Rocky Point	DeLeon Fennell Rt. 1, Box 386 Rocky Point, N. C. 259-4393
November 1	Penderlea Penderlea School Cafeteria 5:00 p.m. dinner 6:00 p.m. meeting	Columbia Union	Joe McGlohon Rt. 2, Box 453 Willard, N. C. 285-3547
November 8	Atkinson Atkinson School 5:00 p.m. meeting 6:00 p.m. dinner	Caswell Canetuck Grady	Harold Aitken Atkinson, N. C. 283-7162
November 15	Hampstead Topsail Middle School (old school) 6:00 p.m. dinner 7:00 p.m. meeting	Topsail Holly	Leslie Batson Rt. 1, Box 1R Hampstead, N. C. 686-0293

Please call upon Board Members for further information. The other members of the Board are:

Maxie J. Lanier, Rt. 2, Box 444, Burgaw, N. C.	259-4867
Bennie Herring, Rt. 2, Box 315, Burgaw, N. C.	283-7178
Arthur Wooton, P. O. Box 89, Maple Hill, N. C.	259-4765
Sidney Williams, P. O. Box 566, Surf City, N. C.	328-2511
Clive Doshier, P. O. Box 741, Burgaw, N. C.	259-2954

Note: Food will be served during the first hour only. But please come early as the program will start promptly at the end of the first hour. Display maps will also be on hand for your examination during the first two hours.

PLANNING FOR THE FUTURE  
OF  
PENDER COUNTY, NORTH CAROLINA

The North Carolina Coastal Area Management Act

Enactment of the Coastal Area Management Act of 1974 [Chapter 1284, 1973 Session (G. S. Chapter 113A)] (CAMA) by the General Assembly capped a period of intense activity in North Carolina and in the Nation.

In May, 1968, the Estuarine Study Committee, appointed by the N. C. Interagency Council on Natural Resources, recommended that North Carolina initiate a comprehensive estuarine management program. The 1969 General Assembly, acting upon this recommendation, enacted Chapter 1101 of the Session Laws of 1969, directing the Commissioner of the Division of Commercial and Sports Fisheries to make a comprehensive study of the coastal zone of North Carolina; and G. S. 113-229 requiring a permit from the Department of Conservation and Development before any excavation or filling project may be conducted in estuarine waters, tidelands, marshlands, and State-owned lakes.

The 1969 General Assembly also enacted legislation prohibiting littering of navigable waters or erection of signs or other structures in such waters without a permit. In addition, it appropriated \$500,000 for estuarine land acquisition, \$80,000 for additional staffing, and almost \$100,000 for long-range studies and planning.

At the National level the Marine Resources and Engineering Development Act of 1966 authorized two concurrent studies of the Nation's posture with respect to the sea; one of the provisions of the Clean Water Restoration Act of 1966 directed the Secretary of the Interior to study the extent of water pollution on the Nation's estuaries; and the Estuary Protection Act of 1968 directed the Secretary of the Interior to study estuary conditions and recommend ways to afford protection to particularly significant areas.

After six years of study and discussion, the Congress enacted the Coastal Zone Management Act of 1972 (PL 92-583).

The Act authorizes the Secretary of Commerce to make up to four "... annual grants to any coastal state for the purpose of assisting in the development of a management program for...its coastal zone." The State coastal zone programs must be reviewed by involved Federal agencies and approved by the Secretary of Commerce. Once approved, annual grants to pay 2/3 of the costs of administering the program may be made.

The North Carolina CAMA is designed to produce a management program that complies with the Federal requirements. North Carolina has received two grants to support program development in the coastal area.

Specifically, the CAMA:

- . Defines "coastal area" as "...the counties that are adjacent to, adjoining, intersected by or bounded by the Atlantic Ocean or any coastal sound. The Governor is granted final and conclusive authority to designate those counties that constitute the coastal area.
- . Charges the Coastal Resources Commission (CRC) with responsibility for establishing guidelines for plan preparation.
- . Provides that "...each county within the coastal area shall submit to the (Coastal Resources) Commission a written statement of its intent to develop a land use plan..." and directs the CRC to prepare and adopt a land use plan for any county that fails to do so.
- . Authorizes annual grants to local governmental units to assist them in preparing local plans and management programs.

#### Pender County Commissioners Take Opportunity to Plan

Local governments across the country are being challenged to become more efficient. The challenges are directly attributable to drastic changes in the way we live. Pender County is no exception!

For example, sub-divisions spring up and the new residents demand services; the county's major source of employment is New Hanover County so new commuting patterns impose new loads upon the road network; population densities are raising questions about water, sewer, and solid waste services; and coastal and river flood plains are being used indiscriminantly. In each of these examples, there are opportunities for the county to grow and prosper, but there are costs attached to them as well.

Individuals and successful corporations know they must choose among alternatives: for example, purchase a vehicle this year or defer a year; build a new factory or expand the old facility. The decisions are based upon facts that are gathered about existing conditions (cash flow, price, cost of money) and some speculation about the future (higher or lower prices and costs). When individuals and corporations make these choices they are looking to the future: they are planning.

The request by CRC for a letter of intent to have a locally directed land use plan prepared came at a fortunate time.

The Pender County Commissioners recognized that a very large number of land use problems had been coming to them for resolution and that the number and complexity of the problems will increase in the future. They also knew that other organizations such as the Cape Fear Conservation District did land use planning but the work should be coordinated and related to the County government.

The County Commissioners responded emphatically that Pender County would prepare its own plan for the future.

#### Planning Board Appointed

The County Commissioners took steps to create a planning function. The first step was selecting a County Planning Board.

Planning boards are recognized in law as a body that studies problems and holds public meetings to ascertain facts and makes recommendations to the County Commissioners. The Commissioners, of course, as the executive/legislative branch of county government, will act independently to accept or reject Planning Board recommendations. Occasionally, the County Commissioners may sit in a quasi-judicial capacity and rule upon differences between the Planning Board and other citizens.

It was very important that a superior group of interested citizens be selected as the first Planning Board in Pender County history. Members were appointed, met, elected officers, and adopted by-laws. The Board Members were appointed under a staggered, over-lapping term arrangement designed to achieve continuity in spite of political change. The Board is composed of:

Name	Residence	Terms (yrs)
Samuel Cox, Chairman <sup>a</sup>	Burgaw	
DeLeon Fennel, Vice Chairman <sup>b</sup>	Rocky Mount	2
Harold Aitken, Secretary	Atkinson	1
Bennie Herring	Burgaw	3
Sidney Williams	Surf City	3
Clive Doshier	Burgaw	2
Arthur Wooten	Maple Hill	2
Maxie J. Lanier	Burgaw	1
Joe McGlohon	Penderlea	1
Leslie Batson <sup>c</sup>	Hampstead	3

The Board has met at least monthly since it was organized. Meetings are open to the public.

<sup>a</sup> Resigned due to transfer, February, 1975.

<sup>b</sup> Succeeded to Chairman, March, 1975

<sup>c</sup> Appointed to fill vacancy, June, 1975.

The County Commissioners received a grant of \$20,000 from the State to aid in preparing a land use plan as defined by CAMA and the Guidelines adopted by CRC on January 27, 1975. The Cape Fear Council of Governments contracted with the County to provide the technical services necessary for completion of the land use plan.

#### Incorporated Towns Plan for Themselves

The CAMA was written to encourage full participation by all municipalities in the coastal area. Letters of intent to plan were submitted by the Towns of Atkinson, Burgaw, Surf City, and Topsail Beach. The letters of intent were accepted by CRC and grants made to aid in paying for the work.

Each of these jurisdictions must perform exactly the same work as is done for the entire county. Thus, RESIDENTS OF THE TOWNS WILL RECEIVE TWO QUESTIONNAIRES AND BE ASKED TO PARTICIPATE IN TWO SETS OF PUBLIC MEETINGS AND HEARINGS. One seeks to involve them as citizens of the town; the other seeks to involve them as residents of the county since town residents are at the same time residents of Pender County.

The towns will also adopt and send certified copies of their plans to CRC. The only difference is the County must take account of the goals and plans of the towns in formulating an over-all plan for the county.

#### Work Accomplished

An aerial photograph base map of the County at a scale of 1"=2000' has been prepared. The photographs were interpreted and built-up, agricultural, forest and wetland areas and open water were marked. The lines were inspected by Planning Board members, corrected on the basis of their knowledge of their townships, and drawn for reproduction. The result is a large scale map of existing land use in the county.

Population (drawn from U. S. Census, school enrollment, motor vehicle registrations, and other sources), county economy, and natural resource information has been collected. Much has been drawn from the work of other planning groups such as the Resource Conservation and Development District Committee.

This information, together with the existing land use maps, have enabled the Planning Board to record the location of important soil associations, swamps, marshes, aquifers, and other resources.

Locating these resources leads to a key part of the land use plan anticipated by CRC: Areas of Environmental Concern (AEC).

The CAMA vests in CRC the sole responsibility for officially designating those key resource areas judged to be important to all residents of the State. Major developments (larger than 20 acres in size, drilling for or excavating natural resources, or structures larger than 60,000 square feet) proposed within

the Areas of Environmental Concern must have a permit from CRC. No State permits not now required by law will affect the large majority of the land designated as AECs.

The Planning Board, at the request of the CRC, is delineating what they consider to be the extent of the areas of environmental concern in Pender County and will recommend to CRC those areas and the uses that may be permitted.

### Public Participation

One of the unique features of the CAMA, totally within the traditions of North Carolina, is insistence that the public - YOU AND YOUR NEIGHBOR - set the goals and objectives for the management of the land in your county. In short, the public must take some choices about their desires and aspirations for the county and make them known to the Planning Board and County Commissioners.

The Planning Board organized and conducted four public information meetings in April and May. The CAMA was described, a slide program introduced the planning process, and very general questions were asked about county problems and solutions. The returned questionnaires were tabulated.

News items have been written and printed in the county newspapers.

Public response has enabled your Planning Board to be more precise in defining the questions only you can answer. They appear on the questionnaire enclosed in this packet. Please take the time to carefully answer the questions and return the questionnaires. The Planning Board will publish the results.

The Planning Board is planning four more public meetings in the county. The dates, times, and places are listed in the materials sent to you. If you have questions (including the meaning of the questionnaire), opinions, and/or suggestions, come to the meeting nearest to you.

### The Alternate County Sketch Maps

Question #6 is special. It asks you to record which of the three land use schemes - A, B, or C - most nearly represents what you would like in Pender County in 1995.

These maps are not finished plans. They are sketches prepared to help you visualize the consequences of some of the choices you make - particularly population growth. Selection of one sketch by a majority of residents does not in any way imply that the changes will occur in exactly the places shown. And only some consequences are shown: highways, water, and sewer. Other consequences will include school sites, public parks, waste disposal sites, water treatment plants, secondary roads and collector streets, and drainage.

Map A illustrates the likely use of Pender County land in 1995 if:

- . Prime agricultural land is protected from development
- . Industry is actively discouraged
- . Widely spaced housing for primarily out-of-county commuters continues to spread along the major highways
- . Recreation housing expands along the US 17-Waterway corridor
- . There is little increase in permanent population on Topsail Island
- . Water and sewer facilities are available only in the incorporated towns
- . Major forest land owners do not change their management
- . Swamps, stream channels, marshes, and the low barrier islands between Topsail Inlet and Rich's Inlet are kept free of development

Map B illustrates the likely use of Pender County land in 1995 if:

- . Development of prime agricultural land is discouraged
- . Swamps, stream channels, marshes, and the low barrier islands between Topsail Inlet and Rich's Inlet are kept free of development
- . Moderate, local industry, in large part based upon crop and wood processing, is located in the County
- . New employment will generate new resident housing demand along the US 17-Waterway corridor and on Topsail Island and require central water and sewer services
- . New population is not confined to the existing incorporated towns and only limited central water and sewer facilities are built.

/The distribution of land uses and the resulting permanent population portrayed agrees generally with the land use plan and the population and economic projections published by the Cape Fear Council of Governments./

Map C illustrates the likely use of Pender County land in 1995 if:

- . Major industrial development occurs. (The location of the industry and the number of construction and operating phase employees are taken from the study published by the Coastal Plains Regional Commission of an oil refinery complex.)

- . Prime agricultural land will not enjoy more than moderate protection
- . Only tidal marsh and estuarine water will be protected
- . New employment, which will spill over into Onslow County, will generate housing demand in the US 17-Waterway corridor that, when coupled with seasonal demand (from two to three times resident population) will result in a continuous urban belt. Recreation pressure on the beaches will be enormous.

Any one of the schemes is possible depending upon the interplay of what you want and the forces of the market place.

All of the assumptions and the implications of the new highway network will be discussed at the public meetings.

PLAN NOW TO ATTEND.



A QUESTIONNAIRE TO GAIN OPINIONS FROM  
PENDER COUNTY CITIZENS ABOUT  
THE FUTURE OF PENDER COUNTY

Please complete this questionnaire to assist the Pender County Planning Board develop a plan for Pender's future.

1. What are the four most important reasons you are a resident of Pender County? (Indicate importance by numbering 1, 2, 3, and 4).
 

<input type="checkbox"/> Uncrowded living conditions	<input type="checkbox"/> Ability to get a job in the county
<input type="checkbox"/> Reasonable quality housing at modest cost	<input type="checkbox"/> Good public schools
<input type="checkbox"/> A community where quality is maintained by deed covenants	<input type="checkbox"/> Low cost of living
<input type="checkbox"/> Low taxes	<input type="checkbox"/> Easy access to high quality hunting and fishing
<input type="checkbox"/> Rural setting with few environmental problems	<input type="checkbox"/> Other (list in a word or two) _____
<input type="checkbox"/> Access to ocean beaches and boating water	
  
2. What do you think are the four major problems in Pender County today?
 

<input type="checkbox"/> Lack of adequate housing	<input type="checkbox"/> Reliance on septic tanks
<input type="checkbox"/> Lack of employment opportunities	<input type="checkbox"/> Quantity and quality of drinking water
<input type="checkbox"/> Poor roads or transportation services (bus, airports)	<input type="checkbox"/> Solid waste pickup and disposal
<input type="checkbox"/> Lack of good shopping areas	<input type="checkbox"/> Loss of agricultural land
<input type="checkbox"/> Inadequate educational opportunities	<input type="checkbox"/> Lack of markets for Pender County products
<input type="checkbox"/> Lack of recreation facilities and programs	<input type="checkbox"/> Flooding and/or drainage
<input type="checkbox"/> Other (list in a word or two) _____	<input type="checkbox"/> Dominance of big landowners
	<input type="checkbox"/> High taxes
  
3. What is the one most important specific corrective action that should be taken by County Government?  
\_\_\_\_\_
  
4. What would you like Pender County to be ten or more years from now?
 

<input type="checkbox"/> The same as it is now (little or no change in number and location of population)
<input type="checkbox"/> Moderate increase in population
<input type="checkbox"/> Generally in the places now populated
<input type="checkbox"/> Evenly distributed in the County
<input type="checkbox"/> Large increase in population
<input type="checkbox"/> Generally limited to the places now populated
<input type="checkbox"/> Evenly distributed in the County
<input type="checkbox"/> In new communities
  
5. Should Pender County
 

<input type="checkbox"/> Encourage any industry we can get
<input type="checkbox"/> Encourage only small, clean industry
<input type="checkbox"/> Only encourage industry related to our agricultural and tourism base
<input type="checkbox"/> Discourage new industry
  
6. Which of the enclosed land use sketches best illustrates your desires for Pender County? \_\_\_\_\_ A, \_\_\_\_\_ B, \_\_\_\_\_ C.

7. Mark the statement in each set with which you most agree.

- a. ☐ The production of food and fiber should be encouraged by keeping our prime agricultural land in agriculture.
- ☐ Prime agricultural land should be treated the same as any other land.
- ☐ Conversion of agricultural land to other uses, such as housing and industry, should be encouraged.
- b. When population density in a local area becomes sufficiently high to warrant public services, such as water supply, sewer, garbage collection, street lights, and similar services, should the facilities and service(s) be built and operated by
- ☐ Pender County
- ☐ Present or future incorporated towns
- ☐ Special purpose districts
- c. Constructing water supply, waste treatment, streets, and other community facilities serving large (10 or more dwelling units) subdivisions should be the responsibility of the
- ☐ Developer
- ☐ Government (including special purpose districts)
- ☐ Lot owners
- ☐ Other
- d. Much of Pender County is characterized by swamps associated with rivers, creeks, and streams. Should these swamps
- ☐ Be modified by snagging or minor channeling only to the extent necessary to maintain "normal" water levels.
- ☐ Be absolutely preserved as they are for fish and wildlife habitat.
- ☐ Be subject to extensive channeling and draining because they cause flooding.
- e. There are three major barrier islands protecting the Pender County coastline. One is developed (Topsail Island). The County should
- ☐ Acquire some beach land to assure county residents will be able to get to the ocean
- ☐ Participate financially with the two towns (Surf City and Topsail Beach) in assuring public access to the beach.
- ☐ Set standards for beach access that must be met by the towns.
- ☐ Let the towns do whatever they want to do.
- Two are developed between New Topsail and Rich Inlets.  
The County should
- ☐ Buy the islands and deed them to the State for maintenance
- ☐ Keep the islands undeveloped by building code enforcement and tax policy.
- ☐ Tightly control the amount and type of development.
- ☐ Encourage the immediate development of the islands.
- f. Location of industry within the County should be
- ☐ Determined entirely by the industry.
- ☐ Limited to specific parts of the County.
- ☐ Permitted anywhere in the County as long as agricultural land, swamps, and similar areas are not used.
- ☐ Prohibited.
- g. If the County adopts a policy of encouraging industry, should the County
- ☐ Use revenue bonds to finance land acquisition and plant construction.
- ☐ Offer tax abatements as inducements.
- ☐ Use both investment and tax relief.
- ☐ Use neither.

- h. Highly developed recreation facilities such as lighted play fields, tennis and basketball courts, and the like are in short supply in the County. Should the County
- \_\_\_\_\_ Establish a park and recreation program to build and operate such facilities.
- \_\_\_\_\_ Adopt a policy that makes it the responsibility of the school board.
- \_\_\_\_\_ Leave things as they are.
8. Population increases will probably mean increases in housing development, shopping centers, manufacturing plants, and other facilities. Do you think the County should control this growth? \_\_\_\_\_ YES \_\_\_\_\_ NO.  
If yes, how?
- \_\_\_\_\_ County-wide zoning?
- \_\_\_\_\_ Regulating subdivisions?
- \_\_\_\_\_ Restricting industries, shopping centers, and large-scale housing developments to specific locations?
- \_\_\_\_\_ Providing general guidance for growth?
- \_\_\_\_\_ Other? \_\_\_\_\_
9. How would you characterize yourself?
- a. \_\_\_\_\_ Head of Household; \_\_\_\_\_ Member of family but not head of household; \_\_\_\_\_ Single
- b. Income level: \_\_\_\_\_ 0 - \$3000; \_\_\_\_\_ \$3000 - \$5000; \_\_\_\_\_ \$5000 - \$7000;  
\_\_\_\_\_ \$7000 - \$10,000; \_\_\_\_\_ \$10,000-\$15,000; \_\_\_\_\_ \$15,000-\$25,000;  
\_\_\_\_\_ more than \$25,000.
- c. Occupation: \_\_\_\_\_ Farmer; \_\_\_\_\_ Business man; \_\_\_\_\_ Professional;  
\_\_\_\_\_ Skilled labor; \_\_\_\_\_ Unskilled labor; \_\_\_\_\_ Retired;  
\_\_\_\_\_ Unemployed.
- d. Place of residence in Pender County (nearest town or community):  
\_\_\_\_\_
10. Please make any additional comments or suggestions which would help us to plan for the future of Pender County.

When you have completed the questionnaire, fold it so the mailing address on the reverse side is visible; secure the open side with a staple or tape; affix postage; and deposit it in the U. S. Mail.

Thank you.

DeLeon Fennell, Chairman  
Pender County Planning Board

EXHIBIT A-2

CITIZENS QUESTIONNAIRE

PENDER COUNTY CITIZENS QUESTIONNAIRE

Exhibit A-2.

The Pender County Planning Board and the County Commissioners are preparing the Coastal Area Management Plan for Pender County. Your Planning Board and Commissioners are vitally interested in the comments and suggestions you and other citizens have and are inviting you to become involved in preparing the plan. Your help will aid in making a plan for Pender County's future which is based on your own goals and interests.

This questionnaire is the first step in the continuing process of getting the citizens involved. You will be kept informed of the progress we are making and will be invited to other meetings as they are scheduled.

Please take the time to fill out this brief questionnaire and hand it in at the end of the Township Meeting or mail it to:

Mr. Deleon Fennell, Chairman  
Pender County Planning Board  
Route 1, Box 386  
Rocky Point, N. C. 28457

- 
1. What do you think are the four major problems in Pender County today?  
(Indicate priority by numbering 1, 2, 3, and 4.)

<input type="checkbox"/> lack of adequate housing	<input type="checkbox"/> problems with septic tanks
<input type="checkbox"/> lack of employment opportunities	<input type="checkbox"/> poor quality of drinking water
<input type="checkbox"/> poor roads or transportation services (bus, airports)	<input type="checkbox"/> problems with solid waste (dumps)
<input type="checkbox"/> lack of good shopping areas	<input type="checkbox"/> decline in population
<input type="checkbox"/> inadequate educational opportunities	<input type="checkbox"/> increase in population
<input type="checkbox"/> lack of recreational or open space areas	<input type="checkbox"/> problems with flooding or drainage
<input type="checkbox"/> other (explain) _____	
_____	
_____	

2. What do you think are the four major advantages of living in Pender County today? (Indicate priority by numbering 1, 2, 3, and 4.)

<input type="checkbox"/> good supply of quality housing	<input type="checkbox"/> closeness to beaches
<input type="checkbox"/> low taxes	<input type="checkbox"/> attractiveness of hunting and fishing areas
<input type="checkbox"/> few environmental problems	<input type="checkbox"/> good schools
<input type="checkbox"/> good employment opportunities	<input type="checkbox"/> low cost of living
<input type="checkbox"/> lack of crowded living conditions	<input type="checkbox"/> rural nature of county
<input type="checkbox"/> other (explain) _____	
_____	
_____	

3. In the next 5 to 10 years, would you prefer to see the population of the County? (mark one)

<input type="checkbox"/> increase rapidly	<input type="checkbox"/> slightly decline
<input type="checkbox"/> increase slowly	<input type="checkbox"/> decline significantly
<input type="checkbox"/> remain the same	

4. In the population of the County does increase, would you prefer the increase to be? (mark one)

☐ inside existing towns (incorporated)

☐ around existing communities (unincorporated)

☐ around new communities or subdivisions outside existing towns and communities

5. If the population of the County does increase, there will be an increase in houses, manufacturing plants, shopping areas, and industries. Do you think the County should control this growth by? (mark one)

☐ County-wide zoning

☐ regulations for subdivisions

☐ restrict where manufacturing, industrial, and shopping areas should be located

☐ provide general guidance for growth

\_\_\_\_ provide no control or guidance at all

\_\_\_\_ other (explain) \_\_\_\_\_

6. What would you like Pender County to be like next year, 5 years from now, or 10 years from now?

7. Please indicate your place of residence in Pender County.

\_\_\_\_ (town or community)

8. Please make any additional comments or suggestions which would help us to plan for the future of Pender County.

Thank you,

Chairman  
Pender County Planning Board

EXHIBIT A-3

TABULATION-CITIZENS QUESTIONNAIRE



Exhibit A-3. Tabulation-Pender County Citizens Questionnaire.

Question 1. Four Major Problems

Choices	First <sup>a</sup>		Second		Third		Fourth		Total	
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Problems
Lack of housing			2	6	1	2	1	1	9	
Lack of employment	10	40	1	3	2	4	1	1	48	1
Poor roads	2	8	2	6					14	
Lack of shopping			6	18	3	6	2	2	26	2
Inadequate education	2	8	1	3	1	2	2	2	15	4
Lack of recreation			1	3	3	6	5	5	14	
Septic tanks	1	4			2	4	1	1	9	
Quality drinking water					1	2	1	1	3	
Solid waste					1	2	3	3	5	
Population decline									0	
Population increase									0	
Flooding or drainage	1	4	3	9	2	4			17	3
Other: Law enforcement	1	4							4	

<sup>a</sup>No. indicates number of times listed.

<sup>b</sup>Wt. indicates weight, i. e., number of times listed multiplied by 4 for first, 3 for second, 2 for third, or 1 for fourth choices.

Exhibit A-3. (Continued)

Question 2. Four Major Advantages

Choices	No. <sup>a</sup>	First Wt. b	No.	Second Wt.	No.	Third Wt.	No.	Fourth Wt.	Total Wt.	Four Problems
Supply of housing									0	
Low taxes	1	4	1	3	1	2	3	3	12	
Few environmental	2	8	1	3	2	4			15	4
Good employment									0	
Lack of crowded conditions	5	20	4	12	1	2			34	2
Closeness to beaches					4	8	2	2	10	
Hunting & fishing			5	15	3	6	3	3	24	3
Good schools			2	6			1	1	7	
Low cost of living					3	6	3	3	9	
Rural nature	7	28	2	6	1	2	2	2	38	1
Other: Friendliness							1	1	1	

<sup>a</sup>No. indicates number of times listed.

<sup>b</sup>Wt. indicates weight, i.e., number of times listed multiplied by 4 for first, 3 for second, 2 for third, or 1 for fourth choices.

Exhibit A-3. (Continued)

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Question 3. County Population

Increase rapidly	1
Increase slowly	13
Remain the same	4
Slightly decline	0
Decline significantly	0

Question 4. Increase Location

Inside existing towns	2
Around existing communities	10
Around new communities or subdivisions	5

Question 5. Growth Control

County-wide zoning	3
Subdivision regulations	2
Location restriction	7
General guidance	4
No control or guidance	0

Question 6. Pender County in future  
(sample of responses)

As it is now	2
Clean industrial growth for employment	8
More shopping, recreation, employment	4
Lower taxes & cost of living	2
Progressive controlled growth	1
Improved education	3
Improved environmental controls	3
Balanced industry, education & recreation	1
Money remain in County	1

Exhibit A-3. (Continued)

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Question 7. Place of Residence

Burgaw	Penderlea (2)
Willard	Piney Road
Columbia Township (2)	Rook's Corner
Hampstead (2)	Ward's Corner (2)
Topsail Township	Ivanhoe
St. Helena	Watha

Question 8. Comments and Suggestions  
(sample of responses)

We do not want industry or anything that would mar the County's beauty.

A self-supporting progressive but controlled growth program.

Solicitation of clean industry is needed.

Improve law enforcement.

Keep hospital and medical facilities at a level of cost citizens can afford.

Involve young people in the planning process.

Any changes should be gradual.

We have more than enough government controls as it is.

EXHIBIT A-4

TABULATION

PENDER COUNTY (2nd) QUESTIONNAIRE

Exhibit A-4. Tabulation - Pender County (2nd) Questionnaire

Question 1. Reason for Residency

Choices	First		Second		Third		Fourth		Total		Four Reasons
	No. <sup>a</sup>	Wt. <sup>b</sup>	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	
Uncrowded living	63	252	65	195	24	48	6	6	6	501	1
Reasonable housing	7	28	17	51	15	30	6	6	6	115	
Quality controls	5	20	12	36	11	22	3	3	3	81	
Low taxes	7	28	24	72	27	54	17	17	17	45	
Rural setting	21	84	57	171	46	92	19	19	19	366	2
Access beaches and water	16	64	36	108	39	78	12	12	12	262	3
Job opportunities	9	36	6	18	4	8	4	4	4	66	
Good schools	5	20	12	36	21	42	7	7	7	105	
Low-cost living	2	8	7	21	12	24	17	17	17	70	
Access hunting and fishing	5	20	9	27	25	50	25	25	25	122	4

<sup>a</sup> No. indicates number of times listed

<sup>b</sup> Wt. indicates weight, i.e., number of times listed multiplied by 4 for first, 3 for second, 2 for third, or 1 for fourth choice.

Exhibit A-4 (Continued)

Question 2. Four Major Problems

Choices	First		Second		Third		Fourth		Total		Four Problems
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	
Lack of housing	5	20	22	66	5	10	7	7	103		4
Lack of employment	44	176	34	102	12	24	9	9	311		1
Poor roads	11	44	11	33	11	22	9	9	97		
Lack shopping	3	12	36	108	30	60	4	4	184		2
Inadequate education	6	24	13	39	11	22	3	3	88		
Lack recreation	2	8	18	54	25	50	5	5	117		3
Reliance on septic tanks	5	20	4	12	8	16	3	3	51		
Quality drinking water	1	4	3	9	9	18	2	2	33		
Solid waste	1	4	4	12	3	6	1	1	23		
Loss agricultural land	2	8	6	18	7	14	1	1	41		
Lack of markets	0	0	11	33	14	28	11	11	72		
Flooding and/or drainage	7	24	13	39	13	26	3	3	92		
Dominance landowners	2	8	4	12	16	32	10	10	62		
High taxes	1	4	4	12	2	8	4	4	28		

Exhibit A-4 (Continued)

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Question 4. County in Future

Same	29
Moderate Increase	79
In populated areas	31
Evenly distributed	37
Large Increase	37
In populated areas	6
Evenly distributed	18
In new communities	10

Question 5. Industry

Encourage any	46
Small, clean only	69
Agricultural and tourist based	21
Discourage any	8

Question 6. Sketch Maps

A.	36
B.	46
C.	51

Question 7.

A. Agricultural Land	
protected	74
treated same as others	16
encourage conversion to other uses	23
B. Service Provision	
Pender County	35
Towns	53
Special purpose districts	24



Exhibit A-4 (Continued)

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Question 7. (Continued)

C. Subdivision Services	
Developers	81
Government	20
Lot owners	8
D. Swamps	
Modified where necessary	44
Preserved	42
Channelized and drained	26
E. Topsail Island	
Acquired land	23
Require access	47
Standards for access	30
Town responsibility	14
Undeveloped Islands	
Buy and deed to State	11
Keep undeveloped	21
Control development	53
Encourage development	16
F. Location of Industry	
Leave up to industry	16
Located specifically	58
Located selectively	34
Prohibited	9
G. Industrial Development	
Revenue bonds-land acquisition and construction	20
Tax abatements	18
Investment and tax relief	18
Neither	56
H. Recreational Facilities	
Park and recreation program	94
Make responsibility of School Board	25
Leave as is	24

Exhibit A-4 (Continued)

Question 8. Growth Control

Yes	85
No	27
County-wide zoning	48
Subdivision regulations	6
Locational restrictions	24
General guidance	36

Question 9. Respondants

Head of household	125
Family member	12
Single	10
Income	
0-3000	17
3000-5000	7
5000-7000	9
7000-10,000	20
10,000-15,000	42
15,000-25,000	24
more than 25,000	15
Farmer	13
Businessman	23
Profession	39
Skilled labor	28
Unskilled labor	3
Retired	30
Unemployed	9

I, Howard Holly, do hereby certify that this is a true and complete copy of the Pender County Land Use Plan prepared pursuant to the North Carolina Coastal Area Management Act (G. S. 113-A-100-123) adopted by resolution by the Pender County Board of Commissioners May 17, 1976. Proceedings of said adoption are recorded in minute book number 7 of the Minutes of said Board, beginning at page 372 and ending at page 372.

Witness my hand and the Seal of Pender County this the 17th day of May, 1976.

SIGNED: Howard Holly  
Pender County Finance Officer

FINAL

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